BARRIERS TO EQUALITY AND REPRODUCTION OF GENDER SEGREGATION IN THE LABOUR MARKET

A study of women's experiences of working in the male-dominated IT-sector in Sweden.

Catrin Wiberg

Essay/Thesis:	30 hp
Program and/or course:	Master's programme of Strategic Human Resource Management
Level:	Second Cycle
Semester/year:	St/2017
Supervisor:	Gabriella Elgenius
Examiner:	Daniel Seldén
Report no:	xx (not to be filled in by the student/students)

Abstract

Essay/Thesis:	30 hp
Program and/or course:	Master's programme of Strategic Human Resource Management
Level:	Second Cycle
Semester/year:	St/2017
Supervisor:	Gabriella Elgenius
Examiner:	Daniel Seldén
Report No:	xx (not to be filled in by the student/students)
Keyword:	Gender, IT-sector, gender segregation, barriers, inequality regimes

---

Purpose: The purpose of this study is to explore the work-related experiences of women working in the male-dominated Swedish IT-sector, in order to analyse what barriers are keeping women out and how they can be understood from a perspective of gender segregation.

Theory: The study builds on the theoretical framework by Acker (1990, 2006, 2012), who argues that seemingly gender-neutral organizations in fact are based on institutionalized gendered norms, embedded into the organizations' structures and hierarchies. These gendered norms are based on the image of the 'ideal-worker' being a male as it builds on stereotypical masculine traits, and thus such structures contribute to the reproduction of gender inequality.

Method: The study has been conducted by using a qualitative research design, collecting data based on 21 semi-structured interviews with females working in IT-professions.

Result: The results confirm that the IT-sector is indeed based upon such stereotypical masculine traits as proposed by Acker, and that the perceived ideal-worker is constructed as male. Masculine skills and abilities are understood as so-called 'tough skills', while women are perceived as having 'softer' skill-sets. These gendered structures and assumptions create barriers for women both in- and outside the sector. As women are unable to identify with the ideal IT-worker concept, females are also less likely to opt for a career within IT. For the women who remain and work in the male-dominated IT industry, results further confirm that women unable to identify with the ideal-male worker also tend to detach from the stereotypically

female role, by describing themselves as not very feminine. Moreover, the results show how there is a lack of female role models in the sector, further causing women to be unable to identify with the ideal worker. In other words, there is lack of role-models available to women in the IT industry as women are excluded from the ideal-male worker type. This, in turn, prevents women to identify with the ideal-male worker as well as female ideals of the sector, and leads to high levels of uncertainty and low levels of self-efficacy. Such exclusive ideals constitute a main barrier to the presence of women in the sector and ultimately to gender segregation that prevents equal access to the IT industry.

Acknowledgements

I would like to express my gratitude and appreciation to all the individuals who have supported me in writing this thesis, without you this study would not have been possible.

To all respondents who took time to participate in my study, my warmest thank you! Thank you for telling me your stories and giving me insight to your experiences.

To my supervisor, Gabriella Elgenius, who undoubtedly supported me throughout the entire process; thank you for advising and guiding me, for sharing your knowledge and for being such a great inspiration! You are truly incredible.

Finally, I would like to thank my family and friends for all your support, for standing by me and believing in me.

Thank you!

Catrin Wiberg

June, 2017

Table of Content

1. Introduction

Sweden is considered one of the world's most equal countries. According to World Economic Forum (Global Gender Gap Report, 2016), Sweden was ranked as the fourth most equal country in the world, closing the gender gap with 81 percent based on women's and men's possibilities to education, economic opportunities, political empowerment and health and survival. Continuing to study the figures the picture of Sweden as an equal country is confirmed, at least on the surface. Compared to Europe, Sweden has a higher employment rate among women, with 71,8 percent females employed in the labour market. 76,9 percent of the Swedish women are attaining secondary education, which is both above the EU-average of 70,9 as well as higher than the number of Swedish males accomplishing the same level of education which reaches 75,5 percent. Also, 35 percent of the female population in Sweden are continuing to university level studies, which is considerably higher than the EU-average of 25,8 percent.

However, when digging underneath the image of gender equality in Sweden, patterns of inequality emerge. For instance, women are less represented in managerial positions (27 percent) compared to the rest of the EU (32 percent), and more women work part time (38,6 percent) compared to the EU-average (32,1 percent). The pay gap between females and males also persists. According to Statistiska Centralbyrån (2016) Swedish women earn 87 percent of what Swedish men are paid – which may be an increase of one percent since 2014 but still below male earnings (SCB, 2016). One explanation to why the gender pay gap persist in Sweden, is the high level of horizontal segregation – also referred to as gender segregation, where occupational groups dominated by males are rewarded with higher salaries compared to occupational groups dominated by females (SCB, 2016). Statistics show how Sweden has a higher level of horizontal segregation compared to the EU-average, with an over- and underrepresentation of females and males in specific occupational groups and sectors. Women in Sweden are mostly represented in occupations such as healthcare (79 percent), teaching and education (77,4 percent) (European Commission, 2013), whilst males can be found in occupations such as system developers and engineering (SCB, 2015). An investigation issued by the Swedish Government in 2015 addressed the problem of gender segregation, discussing how the structurally higher salaries in male dominated sectors could imply how male occupations are valued higher than traditionally female occupations, and thus being a basis for value discrimination (SOU, 2015:50). Horizontal segregation – or gender segregation - is

consequently recognized as an element issue of the Swedish labour market, incompatible with its strive towards gender equality, and thus constitutes an important field for further research.

1.1. Objectives

The objective of this study is to contribute to the research and knowledge about gender segregation in Sweden, by focusing on horizontal segregation and women working in a traditionally male sector by highlighting female experiences.

The sector used as an example of a male dominated sector is the IT-sector in Sweden. This sector is of particular interest, as a fast-developing and growing market with an urgent need for competence and thus holds high potential for employment and competitive salaries. Career development is also often accessible, due to little competition, and salaries are high, implying that the IT-sector is an attractive sector for employees. Nevertheless, few women are currently working in the sector and latest years trends show a decrease rather than an increase of women in IT (Itotelekomföretagen.se, 2017). Increasing the number of women working in the IT-sector is a critical question with both political and financial interest, as the need for competence within IT is constantly growing (von Essen, 2015).

This study contributes to important insights with the help of interviews with women currently working in the IT-sector, bringing forth their experiences of being in a clear minority. By building upon Acker's (1990, 2006, 2012) theories on gendered organizations and inequality regimes, the study sets out to explore how gendered inequalities are constructed and reproduced in the male-dominated IT-sector, and aims at providing a deeper understanding of existing barriers and the reproduction of gender segregation.

1.2. Research question

The research question of this study has been devised to explore the experiences of female professionals and their experiences of working within a male-dominated sector, with a particular focus on perceived and experienced barriers, that hinders or challenges women from pursuing a career within IT. Thus, this research question is based on the findings of previous scholarships and reports of existing gender segregation in Sweden. Putting barriers at its core:

In what ways and how do women, working in the male dominated IT sector experience barriers to career advancement, prospects and development? What type of barriers do they experience and how may these barriers be understood as contributing to the reproduction of inequality (and the regimes of inequality)?

1.3. Outline

This study is structured as follows; after the introductory chapter, with objectives and problem statement, chapter two introduces a background to the IT-sector in Sweden. It presents the IT-sector as dominated by male employees and provide a brief introduction to the variety of occupational groups associated with this sector. Chapter three covers previous research conducted within the fields of gender, gender segregation, barriers to entering male dominated sectors as well as specifically focusing on the IT-sector. In chapter four, the theoretical framework based upon the work of Acker is presented. Chapter five describes the methodological choices, sampling technique and interview processes central to this study, followed by a presentation and analysis of the empirical findings from the interviewees point of view in chapter six. Finally, in chapter seven, the central findings are analysed before being summarized in the concluding sections of chapter eight.

2. Background

To be able to further study the gender segregation and the lack of women within the IT-sector, there is a need to first describe and define the context. The following chapter is structured to provide relevant information of what constitutes the Swedish IT-sector, as well as describing patterns of gender distribution and gender segregation in the field.

2.1. The Information Technology (IT)-sector

The IT-sector can be defined to include all organizations and businesses which to some extent "creates, develops, delivers and run systems and products with digital content in the form of hardware or software" (von Essen, 2015;6). Thus, the IT-sector includes both traditional IT-corporations, purely technological companies offering digital and technological solutions and/or products, as well as other businesses where the offerings are not defined as an IT-

product, but are still containing software and/or hardware. The industry can be divided into four different sectors; production of hardware, sales and support of hardware, data communication services and finally, the largest sector answering for more than half of all employed IT-professionals, software and IT-services. In total, the IT-sector employed almost 189 000 individuals in 2013, and in 2012 the sector had a turnover of 554 billion SEK. As the development of the sector continues through various social trends, such as mobility, globalisation, big data, internet of things and online services, the IT-sector is expected to grow further (von Essen, 2012 & 2015). The occupational group working within the IT-sector is a varied and spread one. However, a few roles have been defined as critical. These are software- and system developers, IT-architects, information- and IT security specialists, interaction designers, testers, business consultants, project managers, product managers, infrastructure technicians' IT and infrastructure technicians' telecom, sales with business responsibilities and entrepreneurs (von Essen, 2015). Almost all occupations within the IT-sector today demands higher education and continued studies after high school.

2.2. The male dominance of the IT-sector

Sweden is recognized as a leading nation in terms of digitalization and IT. According to the Digital Economy & Society Index, measuring the digital performance of Europe and the digital competitiveness of the EU member states, Sweden is ranked at third place and is thus considered one of the most advanced digital economies in Europe (Digital Economy & Society Index, 2017). The Telecommunication Development Bureau of the UN, yearly publishes a report presenting an overview of the world's development in information technology and communication, and assesses 175 countries' performance within the area. In 2016, Sweden was ranked at a seventh place (ICT Development Index, 2016). However, although it according to these findings is possible to conclude how Sweden is both one of the world's most equal countries as well as being one of the top ten most developed IT-countries, the IT-sector in Sweden is still a highly male-dominated arena and few women seems to be entering. Statistics show how the percentage of females working within the IT-industry in 2006 was 32 percent. Ever since, the number has been declining every year and in 2016 the figure is down to 28 percent (Itotelekomföretagen.se, 2017). The number of females working in technical positions within the IT-sector is even lower. In 2013, 12,83 percent women worked within technical positions and 21,64 percent worked as system developers and programmers (Itotelekomföretagen.se, 2017). The occupational group which lifts the total

number of women within IT is project managers, where the number of females working in this position has increased from 27,83 percent in 2006 to 40,2 percent in 2013 (Itotelekomföretagen.se, 2017).

The low and decreasing numbers of females working within in the IT-sector is a problem from multiple perspectives. According to reports ranking the world's countries digital and IT-development, Sweden suffers from a negative trend and has during the last years dropped from higher rankings (ICT Development Index, 2016 & Digital Economy & Society Index, 2017). Keeping a leading position globally is important from both a political and financial aspect, as it drives development in society and is an important factor for competition and effectivity (SOU 2016:89, Digitaliseringskommissionen, 2016). This negative trend can be dangerous, as the IT-sector is highly responsible for financial growth in the Swedish economy. In the years 2006 – 2013, 42 percent of the entire productivity in the Swedish economy came from the IT-sector, and it has proven to maintain positive financial development even when other markets are struggling with negative financial trends (von Essen, 2015). However, now the sector is sending out alarming signals concerning the lack of competence within IT-occupations. A report issued in 2015 (von Essen, 2015) states that Sweden is suffering from an acute and structural lack of competence within IT-occupations, and based on the current development, the sector will need to employ approximately 60 000 people by the year 2020. This statement is further stressed in the Swedish Unemployment Service's statistics of professions and occupations in Sweden, where software- and system developers belong to one of the ten largest occupational groups with an alarming shortage of competence (Annetorp Hörnsten, Asplund, Berglind, Gustavsson, and Mångs, 2016). The shortage of competence is also highly debated in various IT-forums, by trade unions and different political parties (digital.di.se, 2017; unionenopinion.se, 2017; SvD.se, 2017; DN.se, 2017). The political goal for Sweden is to be the number one, world leading nation in utilizing the digital opportunities. However, in order to reach this goal there must be an increased influx of competence. One way of achieving such influx is by increasing the number of women in the sector (von Essen, 2015).

2.3. Young women and IT, the Swedish context

There are a number of ongoing changes that could impact the IT sector. For instance, as technology is more incorporated into everyday life, it is possible that gender segregation

within the industry may start to decrease. However, a nationwide survey was issued in 2015, studying young Swedish women of ages 16 to 30 and their perceptions and attitudes towards the IT-businesses and IT-professions. The study showed how only five percent of the total number of women was interested in employment within IT. Moreover, 51 percent believed that they did not have the suitable personality for working within IT and 21 percent reported that they did not believe they would be comfortable working within such a male dominated work environment (Unga kvinnor och IT, 2015). Furthermore, when answering on what personality traits the respondents perceived as being important for a job within IT, it was concluded that these traits to a large extent were typically male. For instance, 71 percent perceived 'problem solving skills' as important and 75 percent highlighted 'technical skills'. Almost half of the women were under the impression that women were less likely to advance within the IT sector compared to males, and a third of the women perceived the industry as having a typical male culture (Unga kvinnor och IT, 2015). Finally, the research also showed how women did not perceive communication and marketing material concerning both education and work within the IT-sector as targeting towards them, but adverts and communication were rather perceived as being focused on attracting only the male population. In 2016, a follow-up research was conducted focusing on the same group, to investigate whether the results from the previous study had changed. During these two years close to nothing had changed in terms of number of women entering the industry and women were still in general not interested in working in IT. However, some change of attitudes was presented, as the number of women perceiving the IT-sector as a potential sector for a future career had increased by 12 percent from previous numbers. Nevertheless, upon closer look these changing attitudes did not concern technical IT-roles. Attitudes and perceptions concerning technical positions were still negative and continued to be perceived as connected to typical male attributes (Unga kvinnor och IT, 2016). Findings also highlighted the importance family, friends and role models played on career choices, as females who had a mother working within IT were almost twice as likely to be both aware of and being more interested in IT-professions (Unga kvinnor och IT, 2016).

3. The general framework and previous research

In the following chapter, previous research covering the construction- and reconstruction of gender in the labour market and specifically in the IT-sector is presented. This framework

provides insight to reproduction processes of inequality and how such processes creates barriers to equality in the labour market.

3.1. General definitions; gender and norms

This study is based on central concepts such as gender, gender norms and gender stereotypes and the following section provides definitions of what these terms are understood as, historically and at present time.

Traditionally, gender has been connected to the biological sex and the term itself can be traced back to the French word *genre,* which was used to describe classifications such as race or sex. Due to this, gender has often been considered a synonym of the different sexes; male and female. However, as social- and psychological theorists re-defined the term, gender was disconnected from being a solely biological classification into being perceived as a concept based on social expectations of masculinity and femininity (Posey, 2016). Thus, gender norms can be understood as socially constructed systems and unwritten rules, based on the society's ideals and values of masculinity and femininity. Gender norms and gendered systems constitutes powerful and deeply embedded structures, creating rules for what is perceived as accurate female and male behaviours and what the correct attributes, skills, and competences are for men and women. These gendered rules are legitimized and becoming institutionalised through social processes, and are thus causing relations of inequality to exist and persist (Muñoz Boudet, Petesch, Turk and Thumala, 2013). Throughout history there has been little change to gendered norms in society, demonstrating the deep construction of gender norms. Research claims that this is due to how gender and gender norms are constantly present and re-practiced in our daily life, as men and women exist alongside each other and in an oblivious manner constantly are acting on behalf of gendered norms, allowing gender norms to be replicated and reproduced (Muñoz Boudet, Petesch, Turk and Thumala, 2013). Furthermore, breaking the norms of what is perceived as 'right' is often followed by some form of punishment; such as ridiculing or being rejected. In research conducted by Peterson (2005), results showed how female leaders who acted according to typically male norms, such as being dominant, were portrayed as being a 'witch' or a 'bitch' by others.

Male norms are regularly attributed as 'tough skills' whilst female norms are attributed as 'soft skills' (Gurrier, Evans, Glover and Wilson, 2009). Female norms are often linked to emotional qualities, such as empathy, helplessness and caring. Thus, women are traditionally

placed into occupational categories and sectors involving service, education and healthcare. Male norms on the other hand are linked to skills including analytical ability, technological skill, problem solving and ambition, thus putting males traditionally into powerful and complex positions, such as leading positions, e.g. system developers or IT-architects. Authoritarianism, paternalism and careerism are also examples of what is traditionally perceived as male traits (Peterson, 2007). Other examples are presented in a study by Crump, Logan and McIlroy (2007), where the result showed how there were a general belief in the studied organizations that males were better at salary negotiation, as they were perceived as being more aggressive by the nature. Women, on the other hand, are not expected to be aggressive or loud and thus are perceived as being easier to persuade or handle.

Historical male power has caused a monopolism, where males have been in control of the rules, what is right and accurate, what is normative male and what is normative female. Research has also shown that, through their position in society, males have been the ones determining what is perceived as technological, and technological work performed by women has been classified as less important, or even marked as not being technological at all (Peterson, 2005).

3.2. Doing gender – (re)constructing gender identities

'Doing gender' is the notion of how gender is constructed in social interplay, through actions and norms. Gurrier, Evans, Glover and Wilson (2009) describes how the process of doing gender occurs as managers prior to hiring new employees, builds in gendered assumptions into the job description. Applicants and employees then reacts to such assumptions, by acting in expected gendered ways. As the assumptions are being followed the process becomes legitimised, both by the manager and the employee. Applying gendered assumptions and cues can be done to any type of position, and constructions can be both female and male. IT-programming, as an example, is highlighted as having been transferred from a previous female gendered occupation into the male-constructed role it is today (Gurrier et al., 2009). In the early days of IT, there were a majority of women working within the industry. This was due to how women were the ones trained in, and most used to, working with machines such as type writers. During the initial years of the IT-development, computers were considered to be similar to the former type writing machines and were thus linked to females (Gurrier et al., 2009). However, as the industry developed and the image of IT changed into being related to

analytical and logical work, males entered the arena and eventually became the majority group. Crump, Logan and McIlroy (2007) conducted a study with female information and communication technology (ICT) professionals in New Zeeland, and describes similar patterns as to Gurrier et al. (2009). Older women interviewed in their study reported on how women had constituted a majority in the field during its early days, but as personal computers and local networking were introduced, females were considered to lack the right qualification. The increased level of technical elements in the sector caused a decrease of women and an increase of males. By doing gender, and applying gendered norms and cues, the IT-sector became transformed.

Further on, as the IT-sector developed, there was a general belief that women in time would be able to re-enter the IT-market, as new hybrid-roles within IT-consulting and IT-sales were to develop. These new roles would consist not only of technical skill, but also social competence and building relationship-skills, which was perceived as traditionally female traits. However, a reconstruction of gender occurred and the social skills were transformed into also being aggressive and dominant. These skillsets were not perceived as female and thus, women were in spite of the new roles not able to re-enter (Gurrier et al, 2009).

The construction of gendered identities was researched through a study at a Secondary school in New Zeeland, by Abbiss in 2011. Focus was put on the student's experiences of participation in specialist ICT courses, and how they constructed their identities accordingly. Results showed how males were given higher status and were perceived as having a higher interest in areas such as gaming, programming, and software. Females were recognised as good computer users when it came to areas such as keyboarding and document production. However, the study showed examples of girls with both interest and skill within what were perceived as male areas, such as programming and software, but these females were still not able to counteract the constructed gender identities. The ways in which girls used computers and technology were also trivialised, by stating how girls 'just' used computers for e.g. communication purposes. The reasoning behind why boys were better with computers build on arguments such as males having a natural interest and understanding for technology and machines, since they are males and that is what males do. The study showed how hierarchies were constructed, where males were perceived as better and more competent within technological areas and how girls were considered to be less skilled computer users. However, not all males were interested in computers and some girls were highly competent. Nevertheless, this did not counterbalance the constructed gendered roles on computer

identities. According to research (e.g. Gurrier, et al, 2009) there is a clear construction of gendered identities in the IT-sector, where highly qualified IT-professions are linked to tougher skillsets and thus, women are shut out. This is for instance done on a daily basis where both women and men uses discourses based on gender norms and stereotypes, and thus re-enforces the construction of gender at the workplace.

However, such gendered processes are not always noticed and gender differences at times are not acknowledged at all, something scholars refer to as gender blindness (Crump et al. 2007). Gender blindness may occur in organizations where there is an unwillingness to see gender inequality, by for instance taking gender equality for granted and not recognizing structures of inequalities. In such settings, there is a risk of concealing and hiding gendered differences. Once the gendered differences and segregations are concealed, it becomes very difficult to change or improve the situation (Peterson, 2005). Crump et al. (2007) highlight in their research how women, in spite of being well educated and highly qualified, did not question the gendered division in the organizations; which constitutes an example of such a gendered blindness. Also, Peterson (2005) presented results of ongoing processes of gender blindness, where several respondents initially answered that there were no gender differences existing in their organizations. However, later on in the interviews these statements were contradicted, as women confessed to being neglected or made fun of due to gender. Similar findings were also presented by Heath, Martin and Elgenius (2007) in their research of status and class in the British context.

3.3. Gender and the labour market

In *Ethnicity and Gender at Work,* Bradley and Healy (2008) presents extensive research of the experiences of black and minority ethnic women in the UK, building on the theoretical framework of inequality regimes by Acker (2006). Their findings describe a complex pattern of multiple discrimination based on gender, class and ethnicity. Thus, women are primarily found in areas of the administrative sector, personal services, and sales. Their study further highlights how gender discrimination ultimately is stronger than ethnic discrimination, although women in ethnic minority groups are victims of a double discrimination. Moreover, patterns of clusters emerge, describing how certain groups (women, ethnic groups) are concentrated to and, we may say, stereotyped into specific occupations, and thus also excluded from other areas of the labour market. Comparatively, the figures of horizontal

segregation for Sweden (SCB, 2015) also confirm that women are primarily clustered in the public sector and service sector. Women are also, to a higher degree, employed on part-time and fixed-term contracts, and other non-standard forms of employment, and thus being more vulnerable on the labour market compared to male workers. A central factor for reproduction of discrimination is the power relations of employment, which are described as a 'vicious circle of job segregation' (Bradley & Healy, 2008). This vicious circle illustrates how reproductive processes, including informal recruitment processes, managerial control strategies and norms, cause, enforce and reproduce patterns of disadvantages for minority groups. These reproductive processes are then rationalised through methods of blaming the victim or blaming society. Individuals in higher positions may further contribute to such reproductive processes of disadvantages, as they tend to put their self-interest and own careers first, rather than acknowledging inequalities in the organization. Bradley and Healey (2008) further stresses that the road to breaking the patterns of inequality regimes and their reproductive patterns of discrimination commence with the process of admitting and acknowledging discrimination within organizations. Moreover, they found that collaboration and self-organization within and among minority groups function as a possible remedy to combat disadvantages. Thus, change may be accomplished through the recognition of gendered inequality regimes as well as through alliances and internal support within minority groups. According to research presented by Fine (2010), women in male-dominated fields are subjected to stereotypical threats, which causes uncertainty and a feeling of not belonging. Additionally, research shows how individuals reacts accordingly when being subjected to gendered cues. For instance, it was found that male and female university students initially were likely to have similar ambitions, interests, and abilities. However, upon being exposed to stereotypical advertisements and articles (e.g. claiming males to be significantly better in mathematical reasoning), women adjusted their self-believes and ambitions, and became less inclined towards pursuing careers within male-dominated areas, such as engineering and IT. Moreover, this research also showed that women in male-dominated areas, subjected to gender biased cues, as a result also identified themselves less with traditionally female attributes, as these became perceived as liabilities and less desirable (Fine, 2010).

3.4. Gender segregation of the IT-industry

Several studies on the topic of gender in the male dominated IT-market portray how there is an internal level of segregation in IT-organizations (Peterson, 2005; Davies and Mathieu

2005). Women are often to be found in lower positions, with less pay and simpler tasks, as well as being located in non-technical positions such as customer-support. The study by Crump et al. (2007) was conducted as an attempt to look at so called good practices in organizations, thus focusing on organizations with a seemingly good result on gender diversity. However, the study showed how the numbers of males versus females in the organizations were skewed, as HR-departments only needed to look at the overall numbers of the entire companies in order to reach their internal goals. Thus, all employees were included in the statistics; administrators, customer service and so forth. When examining the organizations closer, it became visible that there were almost no women in highly-technical positions, nor in high-status or high-paid roles. Instead, women seemed to be channelled by others as well as themselves into 'softer' positions, less focused on technology.

Peterson (2005) studied women in the IT-consultancy business, which had suffered from lay-offs a few years earlier. Results showed how women were portrayed as being less technological in comparison to males and how the women's work and positions, although technical, were perceived as less important. This further caused a large share of women to be laid off in times of recession, as the companies valued male competence higher and more important for their survival. Such connections were further strengthened in later research by Peterson (2007), where findings described how the male dominance was being reinforced as women and 'softer kinds of work' were not valued as high as the 'male' roles within system development, programming, and IT-architecture.

In a study focusing on both the Swedish and the Irish context, Davies and Mathieu (2005) found similar patterns as Peterson (2005). Their study showed how women consistently were perceived as being less technical and thus their contributions as less important. This proved to be true for both countries, and the majority of females in the investigated companies were working in peripheric and non-technical positions. Interestingly, this proved to be true also for women with former technical education, who were guided into positions such as project managers and similar roles. The result of this was a skewed gender diversity within the IT-sector, and thus the male dominance was reproduced**.**

In Peterson's (2007) studies on gendered work ideals in Swedish IT-consultancy companies, results confirming a gendered sector and presence of gendered stereotypes of women and men were presented. The study further argues for how masculinity and male stereotypical traits are valued high whereas female traits are not. Femininity was connected to not having the right skills, nor dedication, to technology as well as not having the preferred or right toughness and

social competence. Women were ‘soft’ and did not have the same level of commitment as males. Thus, women did not fill the role of the ideal IT-worker, which was based on male norms and stereotypes. The connection of softness to females, and toughness to males was further argued to be a strategy to maintain male symbolic power and a re-creation of the masculine work-ideal (Peterson, 2007)**.**

Michailidis, Morphitou and Theophylatou (2012), studied discriminating factors females face in working life, e.g. barriers women need to overcome, and what actions can be done in order to do so. Out of the study’s 154 participating women only eight had reached top management positions, and a minority had reached a middle-management level. The findings showed how females had troubles balancing work- and family life, as they often were the primary caretaker of the family’s children. Research has also shown how different attitudes have been directed at women and men (Cross and Linehan, 2006). Married women were considered to be a liability for the organization while married men were seen as an asset, due to how the men had a support structure in their family. Married women, on the other hand, were rather seen as being the support network for her husband. Having organizational support, e.g. by implementing flexible working hours proved to be of importance for women breaking the barriers (Cross and Linehan, 2006).

3.5. Role Models and Self-efficacy

Role models have proved to be a key factor to support women in entering male dominated sectors. As role models signalises support, provides inspiration and show how something can be accomplished, they have been described as key factors to successful development (Michailidis et al, 2012). Role models are also important as it challenges the presumed ideas of gender and gender norms at different levels. Several studies conducted on women in male dominated sectors have highlighted the need for role models in the organization, in order to motivate more women to enter (Mathieu et al, 2005). A role model signalises to individuals identifying with that person that it is possible to enter, if he or she can – so can I. The lack of females, and hence lack of female role-models, in the sector thus creates a barrier towards gender equality.

Cross and Linehan (2006) investigated barriers to advancing female careers in the high-tech sector. The findings suggested that a combination of poor organizational policies and stereotypical attitudes constructed a number of barriers, leading to a lack of advancing

females in the organization. One such perceived barrier was how senior managers, in an informal system of selection and promotion, gave males precedence over women to advancing positions. Such systems or processes, where individuals choose individuals from the same sex, e.g. males opting for males, is referred to as homosociality. It has been argued that homosociality is used as a strategy for men to hold their dominant positions, thus keeping other groups shut out (Hammarén and Johansson, 2014).

Michie and Nelson's (2006) research indicated that self-efficacy was the most important factor for individuals career choices. Low levels of self-efficacy proved to constitute barriers to both choosing and persisting in certain job positions. As women generally had a lower self-efficacy and belief in their own capabilities to succeed in an IT-profession, this is a crucial question for the IT-business to deal with in order to increase equality. Findings in the study also revealed how males had lower confidence in women's technical competences and skills, leading to discouragement of women trying to break into the male dominated IT-field.

Peterson (2010) conducted a study on gendered constructions of technical self-confidence, based on research showing how high levels of technical self-confidence are related to becoming successful and respected within the sector, and women's difficulties of adjusting to this image. Peterson argues that women's habit of underestimating their technological competence and low self-confidence is used as a strategy by women to navigate in the technological arena, dominated my male ideals. Women who demonstrate high levels of self-confidence and compete on the male's premises are subjected to disapproval due to how they are breaking the rules of what is considered appropriate female behaviour. By applying a low level of self-confidence, they are not risking crossing the gendered ideals and thus not having to be confronted with discontent. Thus, women are faced with a double-bind dilemma. If they are not portraying a high level of technical self-confidence they do not correspond to the image of the ideal IT-worker, and therefore become less successful. However, if displaying self-confidence in accordance with the ideal role, they are breaking their gendered role as a woman and are facing punishments, such as being perceived as a 'bitch' (Peterson, 2010).

4. Theoretical framework

The focus of this study is to investigate the barriers that women in the male-dominated IT-industry experience, and the ways in which such barriers contribute to the reproduction of

gender inequality. Since actual barriers and the reconstructions of gender inequalities may be difficult to distinguish, due to processes of gender blindness, homosociality and lack of role models, as explored in the previous chapter, the theoretical framework here aims to reveal and navigate the tensions between such barriers and reconstructions.

By building on Acker's (1990, 2006, 2012) theories on gendered organizations and the ideal worker together with related research, the analytical tools chosen to aid this study provides insights into how gendering processes occur in organizations and how inequality regimes are embedded into the foundation, structures, and processes of an organization, allowing for persisting inequalities.

Acker (1990) argues that all organizations, seemingly gender neutral, in fact is based upon gendered assumptions embedded into the organizations structures and hierarchies. These gendered assumptions are hidden into concepts such as an abstract worker, who is perceived as gender neutral, but in reality, is built upon gendered and often male norms. These gendered patterns and distinctions of male and female in organizations are constantly affecting individuals' possibilities to advantage and disadvantage, action and emotion and meaning and identity. Acker (1990) describes an ongoing process of gender division of labour in the organizations, where males most often hold the top management- and most powerful positions in the company. In some cases, these positions are filled by a woman acting like a man, allowing men to remain in control of the processes initiating and maintaining gender division. The division of labour is also maintained by the use of images and symbols where the successful business leader is portrayed as a man, for instance through clothing or language. Gender inequality has also showed to be produced through conversation, such as by setting the topic and interruptions, where males are having the dominant roles and women are expected to be submissive. All these processes have shown to affect an individual's idea of identity and thus is an influencing factor when it comes to choosing a career or in presenting oneself. Although organizations might appear gender neutral to an observer, gender is constantly embedded in structures and patterns, created and re-created in the every-day work of the organization. These structures further create an image of the ideal worker in skilled-positions as in fact male, marginalizing any woman entering this male sphere (Acker, 1990). This ideal worker is institutionalized into the organization and its processes, causing it to in an un-questioned manner affect all types and levels of managerial practices as well as constituting the idea of what behaviours are appropriate for employees and who is best suited for the job. Hence, gender inequalities are both constructed and maintained. In later work by

Acker (2012) this idea is further developed, where the work ideal in itself is part of what causes employers to select their employees. Traits such as education and working life experience are also of importance. These ideals are based not only on the idea of the ideal worker but on actual real life ideal workers. Hence, Acker (2012) refers to these ideals as 'situated work ideals'. The situated work ideals are based on the ideals, skills, competences, knowledge, behaviour and personal traits which are considered to be the ideal worker for that specific job and organization. Hence, depending on what situated work ideals that are desired a woman can also be seen as the ideal worker for a certain organization, if the desired skills, behaviours and so forth are based on what is considered to be connected to femininity. However according to Acker (2006) feminine traits and behaviours are connected to being compliant, and caring of others.

Inequality, as defined by Acker (2006; 443), refers to the *"systematic disparities between participants in power and control over goals, resources, and outcomes: workplace decisions such as how to organize work; opportunities for promotion and interesting work; security in employment and benefits; pay and other monetary rewards; respect; and pleasures in work and work relations."*. Inequality regimes are interlocked processes, practices, actions and meanings which together upholds inequalities in terms of class, gender and ethnicity within organizations. All organizations suffer from inequality regimes to various extent. Some inequalities may be more obvious, such as managers are being paid more than production workers. Other inequalities are more difficult to distinguish; such as separating gender, class and ethnicity from each other. Inequality regimes are not constant functions, but are fluent and exist in relation to its context and society. Factors such as history, politics and culture affect inequalities in work organizations. The components of inequality regimes consist of six themes: Bases of Inequality; Shape and Degree of Inequality; Organizing Process Producing Inequality; Visibility of Inequalities; Legitimacy of Inequality and Control and Compliance.

Bases of inequality can vary, but the most common bases are gender, sexuality, class and race. Class is related to enduring and systematic differences in control over resources, often linked to monetary differences. Class is often incorporated into employment, as position and wages directly affects class. Gender are socially constructed differences between males and females, which is a very common base for inequalities in organizations. Often, gender is intertwined with class as males in the past almost always held the powerful positions in organizations, with the high wages, and women were positioned in low-paid positions with little power and

control; such as being a secretary or clerk. Race, linked to ethnicity, is related to differences due to physical attributes, culture and historical oppression.

Shape and Degree: Steepness of hierarchy is one example of shape and degree of inequality regimes. The steepest hierarchies are often found in bureaucratic organizations whilst modern, flatter organizations are less steep. A steeper hierarchy is also often more unequal, looking to the US and European context it is extremely common to find white males in top positions - especially in larger organizations. The degree of gender segregation is still prominent in many organizations, for instance men and women working within the same occupational group are still not likely to have the same type of tasks and therefore power and control. Acker describes an example of a banking firm, where women and men were in the exact same position. The male employees still received special treatment in being prepared and trained by seniors in order to take on future managerial positions. The women, on the other hand, were not. Women are also put in difficult situations if reaching managerial positions, since if they manage differently to males they are perceived as softer. If the man and woman are managing in similar ways, women are violating their subordination to men and are thus risking punishments in form of being labeled as ‘witches’ or ‘bitches’.

Organizing Processes Produce Inequality: Class hierarchies are organized in different ways, for instance by introducing job type levels which is correlated to a certain wage level. Research by Acker showed that women’s job types to a much higher extent were clustered together, which resulted in unnuanced wages and inequalities. Males’ job types were on the other hand more defined and nuanced, resulting in higher and fairer wages. Recruitment is another process which often produces inequalities, as the ideal worker often is portrayed as a white male. Wage setting also proved to be in favor of white males.

The Visibility of Inequalities: The degree of awareness of inequalities, or the visibility of inequalities, varies. Research has shown that majority tend to be blind to the ongoing inequalities. Men for instance do not see the segregation of women, white people are blind to ethnic inequalities and so forth.

The Legitimacy of Inequalities: Like the level of visibility, level of legitimacy for inequalities differ in organizations. Due to the foundation of the organization, legitimacy can be affected. For instance, a public or voluntary organization with high democratic standards may perceive inequalities as illegitimate.

Control and Compliance: Control is mostly linked to class, as higher managers exceed control on subordinates. Making it illegitimate to challenge inequality regimes such as gender and race is one way of exercise control. Identities are reproduced through status and differences. The ones with most power and prosperous combination of interests are also able to control others, and thus maintain their personal interests.

According to Acker (2006), it may be possible to change inequality regimes. However – it is not done easily. Allegiances towards gendered and ethnic advantages as well as interests in maintaining class levels, makes it difficult to achieve equality. Opposition may be expected as the breadwinning group risks of losing its advantaged position. To achieve change, social movement is needed and pressure from the national government and regulation is crucial.

5. Method

The following chapter describes the methodological choices of the research, as well as elaborating on the data selection and data analysis process. Finally, limitations and ethical considerations of the study are presented.

5.1. Rationale for research design

The objective of this study is to investigate what experiences women working within the IT-sector, as an example of a male dominated sector, have as well as to study potential barriers women perceive. According to Hakim (2000) a qualitative research design enables the researcher to go deep into a phenomenon, seeking to capture and understand peoples' views, emotions, and experiences. The qualitative method's starting point derives from the studied individuals, and focus is put on their understanding and interpretation of the reality. Furthermore, this allows the researcher to study a phenomenon within its context and taking social interplay and networks into account (Bryman, 2001). Based on this, it is argued that a qualitative research design and a purposive sampling strategy is appropriate for this study, as it sets out to analyse women's experiences of working in a male dominated sector, and reach a deeper level of understanding of the phenomenon. One of the strengths of using a qualitative method is that it allows the researcher to meet the respondents in their context, and making sure to ask follow-up questions to get full and in-depth knowledge (Charmaz, 2006). Quantitative methods and a random sampling strategy would therefore not be appropriate for this study, as it would not provide the appropriate in-depth material or sample saturation

(Hammarberg, Kirkamn,and de Lacey, 2016). However, a risk with a qualitative method which is eliminated in a quantitative design, is the impact of the researcher. In a qualitative design the researcher is highly involved in both the data collection process as well as in the interpretations of the data, hence the final result of a qualitative study stands in relation to the researcher's skill and experience (Bryman, 2001). Due to the time-consuming data collection process of a qualitative design, sampling groups are often smaller compared to quantitative designs, where larger populations can be engaged in the research. To be able to generalize the result, the small sampling groups of qualitative methods are often not enough (Hakim, 2000). However, for this study the aim is to explore and capture human experience and attitudes on an in-depth level, and thus a qualitative design is applied.

5.2. Sampling

The purpose of this study is to understand and analyse the experiences of female workers within the IT-sector and the participating interviewees have been selected in order to achieve maximum variation sample within this group of female professionals (see Table 1). Thus, the aim was to recruit women in various positions within the IT sector, corresponding to the main occupational groups described in chapter 2.1. Special attention was to make sure that women in both highly technical roles (e.g. system developers) and in more managerial and less technical roles (e.g. project managers) were recruited. This was done in order to broaden the scope to different levels of and variations of the IT-sector and fully gauge different experiences. Moreover, in order to make sure that sample demography was taken into account, the sampling group also consisted of women of various ages, as age may have implications on whether women have experienced change towards gender equality over time. Hence, the interviewed women were of different ages, ranging from 25 to 59 years of age. All of the 21 interviewees of this study were employed within the IT-sector and had worked within this for at least six months to have formed an understanding of their working situation. Sample selection on the basis of ethnicity, although highly interesting is beyond the scope of this study and a matter for future research. Thus, the sample mainly consisted of women defining themselves as 'Swedish'.

In order to find a sampling group matching the design of the study a number of companies working with IT were contacted. These contacts were used as gatekeepers, allowing the researcher to get in touch with potential respondents for the study. The gatekeepers were

contacted via e-mail and were provided with a presentation of the study, describing its purpose and how it would be conducted, as well as being provided with contact information to the researcher. All gatekeepers came back with positive responses to the study, and distributed a presentation and a request of participation to employees corresponding to the set-up criteria within their organization (see Appendix 1). Adding to the purposeful sampling technique where gatekeepers were contacted, a snowballing sampling technique was applied as the interviewed respondents were asked if they knew other women within the field, who matched the criteria and who they thought would be interested. Also, some women were contacted via LinkedIn and were invited to participate. Since a combination of sampling techniques were applied the risk of only relying on snowballing, where data may be misleading due to not being able to control the sampling group, was minimised.

The interviewed respondents are presented in the table below. The table is structured according to occupation, describing the total number of respondents in each profession as well as providing a short description of that profession. In total, 21 interviews were conducted.

s

Table 1: distribution of respondents according to profession

IT profession:	**Short description of profession:**	**Number of respondents:**
System developer / Programmer	Working with the system developing process, such as programming and implementing new software. This is a highly technical role, and the occupational groups are highly dominated by males. Demand for labour is high and it is considered a high-skilled role.	**7**
Interaction designer	Concerned with designing technical products for increased user ability. This is a mediate technical role, with focus on how humans are interacting with technology, and the link between the two. Interaction design puts less focus on technology, and more females study and work in this occupational group, compared to e.g. system developers. However, it is still a male dominated profession.	1
IT management	Management and leadership positions within the IT-field. Less technical role, need understanding for IT and	4

	technology. Can reach this position with various backgrounds, both in technology and without former technological training. High-skilled position. The higher up in the hierarchy, the more males are dominating the arena.	
IT project manager	Responsible for the planning and execution of IT-projects, including e.g. client relations and budget responsibility. Less technical role. More women are working in this position compared to e.g. system developers and highly technical roles.	2
IT architect	Responsible for the technical system structure. Highly technical role and a highly skilled role, very dominated by males. Few women reach this position, which is considered a highly-ranked technical position.	1
Software Tester	Responsible for testing developed software, checking for bugs in the system and testing its quality. Technical role, however often ranked as less technical compared to system developers. Male dominated.	3
IT security specialist	Working with IT-security, defending IT-systems against threats and security breaches, creating IT-surveillance solutions, working with penetration testing and similar. Highly technical role. Male dominated.	1
PhD student, computer science	Conducting research within computer science fields. Level of technology depends on research field. Can be very technical. Few women, very male dominated.	2

5.3. Data collection and data analysis

Data collection consisted of 21 semi-structured and open-ended interviews with women working in various IT-positions, as described in previous section. The open-ended, semi-structured interview design provides the researcher with instruments to explore the studied phenomenon from the respondents point-of view, as well as with enough flexibility to ensure deep and rich data, thus allowing for potential new knowledge to appear (Charmaz, 2006). During the interviews, the researcher paid careful attention to any potential emerging themes, which might be of interest for the study, and after each interview the interviewer made sure to add any relevant questions according to such coding and emergent themes.

The interviews were held from the end of March until the end of April, in the two largest cities of Sweden; Stockholm and Gothenburg. 20 of these 21 interviews were conducted in person, and took place at a location chosen by the respondent, such as at cafés or at the respondent's work place. One interview was conducted via Skype. The main priority when choosing a location was to make the respondent feel as comfortable as possible, as this could support the interviewees willingness to be more open and to give full and honest answers. All respondents were offered the alternative to be interviewed through Skype or by phone, if time constraints and/or geographical location made it difficult to meet in person. However, a meeting in real life was promoted for, as this may lead to a more relaxed interview with fuller answers, as well as providing better conditions for the researcher to register and interpret body language. The interviews were expected to take about 45 minutes to one hour, but the actual length of the interviews ranged from 40 minutes up to two hours. All but two interviews were held in Swedish, the remaining two were held in English. The interviews were recorded, after having received permission from the respondents, and additional notes were taken manually during the interviews. These recordings were then transcribed, using the same language as the oral interviews, prior to commencing the data analysis process. Analysing the data proved to be an overwhelming task, due to the rich and large amount of collected data, a common challenge for qualitative researchers (Spencer, Ritchie and O'Connor, 2003). The data was then coded using thematic qualitative coding, where sub-codes were applied and then arranged into larger codes and themes (Bryman, 2001). Finally, the most apparent codes and themes were selected to be presented in the study.

5.4. Ethical considerations

Asking questions about experiences and gender segregation within the IT-sector can be considered to contain some level of sensitivity, as some women in the study may have encountered, or been exposed to, some form of discrimination during their careers. Also, women may be reluctant to discuss themselves from a gender perspective as this could be interpreted on a personal level, connecting them to their femininity rather than their job which might be offensive to some. Furthermore, discussing and raising the question of gender segregation is a way of acknowledging it may be sensitive to people belonging to the minority group, since acknowledging and raising a problem also may be perceived as creating a problem. Thus, if the respondents find the questions and the topic too sensitive there is a risk that they will adjust their answers, something the interviewer must take into account when

posing the questions. This issue was addressed by making sure to open up each interview with introductory questions and paying attention to the respondent's responses and expressions of comfort or discomfort. Tough questions must still be asked in order to get full data; however, the researcher must be careful and aware to pose these at a suitable time. As previously mentioned, the researcher is deeply involved in the data collection process during a qualitative study and thus the researcher or interviewer may constitute a question of sensitivity. This study was further conducted by a female researcher and thus the respondents may have experienced a higher level of security during the interviews. As gender, gender norms and gender stereotypes were subjects in focus during the interviews, the researcher further made sure to dress in neutral colours and clothing. After the initial interviews, this proved to be of importance, as some of the respondents expressed how they restrained from wearing typically feminine clothing items and colours, such as skirts and pink. From this point in time the interviewer made sure to only wear clothing in black, white, and grey to increase level of security for the respondents. The geographical location of the interview is also of importance. Conducting the interview in a loud and open location with the risk of overhearing, or having the interview in the respondent's work place, could also be a question of sensitivity. To ensure rich and full results, this has been taken into consideration during the entire interviewing process and all respondents were offered to select a location of their choice where they felt comfortable and relaxed. During the first point of contact the respondents were given brief information about the study and received contact information to the researcher in case they had any questions. The respondents were also given information of how the study is conducted in accordance with the ethical guidelines set up by the scientific council in Sweden (Vetenskapsrådet, 2012) and they were guaranteed full anonymity and confidentiality. Prior to all interviews the interviewer gave an oral presentation of the study, explaining its purpose, length, role of the interview as well as repeating full anonymity and confidentiality for the respondent. They were informed that no interviews were to be published in their entirety but quotations from the interviews could be used in order to describe the results of the study. All interviews were recorded, however before any recording started all respondents gave their permission to do so, after being informed of the purpose of the recording, to aid the researcher in analysing the results, and that all recordings would be safeguarded by the researcher and not be published.

5.5. Limitations

The participants of this study were selected based on their professions in the IT sector and not their working organizations. The focus was put on exploring the experiences of women working within the male-dominated IT-sector, with an objective to get a fuller scope by interviewing women in different positions and in different organizations. Additionally, women being a minority group within the IT-field as well as time constraints of the study made it difficult to access a single company with a large-enough group of females working in IT-roles. However, this do pose a limitation on the study as it does not cover the impact the various organizations may have on the respondents' experiences.

6. Empirical Findings

The empirical findings are based on 21 interviews and their transcriptions. The transcriptions were all coded with help of qualitative thematic coding (Bryman, 2001). Significant themes have emerged as a result of codes and sub-codes, and include e.g. personal experiences of career choices, educational background and choices, definition of self, experiences and understandings of femininity and masculinity, personal-, organizational- and structural barriers to gender equality, women's strategies of overcoming barriers, strategies of avoidance and neglect. The structure of the following chapter is thus based on these main overall codes, for which there were originally a number of sub-codes.

In order to understand the viewpoint of the interviewees, quotations are used as examples throughout the chapter, contextualised with age and occupation of quoted female worker. The theoretical framework of the study, building on Acker's theories on gendered organizations and the ideal-worker, as well as the general framework, is used to analyse the findings.

6.1. Entering the IT-sector

The IT-sector is as previously discussed dominated by males. However, there are women working in the sector, and some women continue to enter. This first section of the empirical findings describes and discusses how some of these women entered the IT-sector, what caused them to enter, as well as focusing on how they have navigated their careers in the sector.

Interesting findings show how the majority of the respondents in fact did not choose a career within IT as their first choice, but a substantial number of the women actually started off in other positions or education. Although several of the women describe an interest in mathematics, they also describe how they did not even consider engineering or working with IT as potential careers. Instead, they opted for occupations such as teachers, with biomedicine, with design or as nurses. However, for different reasons, these women after a while, either in working life or during educations, changed direction of their careers. Many of the women describe their choice of working within IT as a coincidence or a 'lucky slip', where they came in contact with computers, IT or programming by accident. Out of the entire sample group and the 21 interviewed women, only five women describe how they actively applied to study and work within IT. Thus, more than three quarters of the entire respondent group discovered their interest and were introduced to the IT-arena through other subjects and fields. For instance, one female started off working as a pastry chef and when she wanted to change her careers she went into teaching, before she discovered her interest in IT. Today she is working as a system developer and has been for the past ten years;

> **System developer, female, 45 years old:** *"I am trained as a pastry chef from the beginning, during high school… wanted a creative profession… so studied to become a pastry chef in high school and worked with that for a few years… but then I got this idea that I wanted to become a teacher… so continued to study, studied religion and English… and then I was to write my bachelor thesis… and to do so I bought myself my first computer and then I was hooked… never finished that thesis, instead started to take courses within databases and programming…*"

Another respondent describes how she always has been very interested in mathematics, and when graduating from high school the local student counsellor advised her to become a teacher in mathematics, as this according to the student counsellor was the only way for her to continue to work with the subject. Working with computers was never something that occurred to her as a potential career at that time, as she thought computers was not for people like her;

> **System developer, female, 31 years old:** *"It felt like computers only were for certain types of people… I think… a bit stereotypical maybe… but that maybe you had to be one of those who likes to play computer games very much or something like that… (…) I definitely think of my brother when thinking of computers and him and his friends sort of… that it was a certain type of guys… no… I didn't really even reflect on that*

(computers) as an alternative in any way… it is difficult to point out what it was… and then I think I also, for some reason, had an idea that I was supposed to work with human beings and people in some way (...) which I don't understand today because I think it is really nice to not be working with people in that sense"

However, after having worked a few years as a teacher she switched path, and started to study advanced mathematics at the university. It was first now, during the mathematic studies she realised that programming might be something for her;

System developer, female, 31 years old: *"I… studied a master in advanced mathematics and when I did that I encountered programming and thought it was very fun and after that… when we had elective courses I took as many programming courses as I could (…) I had a feeling, a hunch, that programming could be something for me… deep inside… probably since it allowed me to work with problem solving and using my meticulous trait…."*

Many of the interviewed women tell similar stories, where careers within IT was not even considered as a possible alternative, although they often had interest in mathematics and problem solving. Mathematics also proved to be a common entry gate for many of the women into the IT-world. A woman who during high school studied media describes how she navigated into her current position as system developer;

System developer, female, 28 years old: "*It was really a coincidence because I thought of studying technical design first and to do that I needed to take some science courses, to meet the prerequisites. So, I did that at Chalmers (University of Technology) and studied their base year, and that was when I discovered how fun mathematics was… so after that I tried to become a mathematician, joined the mathematics programme, and studied there for two years. Then we started with programming during the studies and I felt it was more connected to reality… (…) I really felt that okay, this is it, because I could sit for maybe five hours in the lab just programming and it felt like maybe only 30 minutes had passed, since it was so much fun and then I felt that okay, I need to work with this…"*

Moreover, some of the respondents describe how they did have an interest in computers and/or IT earlier on in their lives, but when it came to choosing education they did not opt for IT in the first case. A woman currently working as an IT-project manager describes how she, despite having a previous interest in computers, did not deliberately pursue a career within IT;

> **Project manager, female, 28 years old:** "*I studied a bachelor within information architecture… it doesn't really sound like an education within computer science… I thought it was a lot about working with information, more in a journalistic way when I applied… so I actually slipped into IT…but I have always been very interested… (…) I have always thought of computers as something fun and I have never found it difficult. When the first social medias came, you could code your own profile page in HTML, which was something I did both for myself and my friends… so I think I've always been very interested but not really knowing… never thought I would work with this (referring to IT) until I ended up at my education and now I am really happy coincidence helped me find my interest"*

These findings of how women, independently of former interests, did not initially pursue a career in IT corresponds to the results presented by Gurrier et al. (2009) and points to findings that demonstrate that female- and male norms and gendered stereotypes causes women and men to opt for different occupations in different sectors. The female stereotype is linked to traits such as empathy and caring, and their findings showed how women were more prone to choose a career corresponding to these traits, e.g. as nurses or teachers. The male stereotype on the other hand is linked to abilities such as analytical thinking, problem solving, and ambition. Hence males were more prone to be found in professions involving high status, power, and technology, for instance as system developers and other engineering professions (Gurrier et al., 2009). This can be confirmed by the findings in this study, where most women had worked in occupations linked to female stereotypes prior to their current positions, or studying to enter traditionally female-sectors, such as teaching. The findings also report on how the women felt and experienced expectations on how they were to work with caring, human interaction or similar tasks – all corresponding to the female stereotype. According to Acker's (1990) theories on gendered organization and the 'ideal worker', high-skilled work and occupations are to a high extent based on male traits and norms, which creates the idea of males being more suitable for these types of occupations. Thus, there are gendered assumptions embedded in the constructions of work roles, and when male traits constitute the ideal for a certain role, women are less prone to enter such a career as they are genetically unable to fill this ideal role. The findings of this study show how women consider IT to be for "other" people than themselves, referring to males and male traits, as well as initially not considering IT as an actual career option for themselves, no matter personal interest or skills in areas such as mathematics and problem solving. This correlates to Acker's (1990) theories

as it can be argued for how occupations in IT are perceived as corresponding to males, which shuts women out.

Furthermore, the findings of the study show how more than half of the interviewed female group opted for educations which were not described as hard core technological educations when entering the IT-sector. Although, when the women described their educations during the interviews, they still refer to more traditional computing programmes and technological education;

> **IT-manager, female, 34 years old:** *"I studied product development design… really a machine engineering programme you could call it"*

> **System developer, female, 45 years old:** *"I studied system engineering at the University, didn't feel as technological and difficult as the educations at Chalmers (University of Technology)… but really the same thing… maybe we had more focus on processes but it was just a couple of courses"*

In general, many of the respondents had a perception that women more often opted for educations and professions in IT which contained areas such as design, human interaction in technology and user experience. For instance, one of the respondents describe how the gender distribution evened out when she started her master's in interaction design. Here there were approximately 40 percent women, compared to her bachelor in computer science where there were 10 women in a class of 84 students.

> **Interaction designer, female, 27 years old:** *"There it actually was a completely different gender distribution… think we were about 40/60… because you can start the master without technical background (…) maybe design is appealing… and maybe the focus on humans and machines, like the relationship of humans and machines and psychology… because there were ones with a background within language… and someone who took psychology… but he was a guy…. But there were fewer girls with technical background"*

Another respondent describes similar experiences, where she experienced an increase of women after she had completed her bachelors within computer science and started her specialisation toward IT-security at master's level.

> **It security specialist, female, 41 years old:** *"It felt like that within IT-security there were more women compared to the ones who studied civil engineering in computing,*

where there are many who becomes system developers and programmers and so… in that group there were less girls I think… IT security is a bit broader… maybe there are some soft aspects and so… and I think there could have been a few more (women) because of that. I don't know"

These findings further indicate for how there is a gendered perception of technology being a male trait, which corresponds to Acker's (1990) theories of the masculine ideal-role and gendered organizations. Women seems to not be inclined to take on the more advanced technological educations and occupations since this is in conflict with their gendered ideal-role.

6.2. Career navigation and aspirations

The previous section provided insight on how females entered the IT-sector. The following section covers the next step, how these women navigate their careers inside the sector, and presents findings concerning their own aspirations as well as expectations from their surroundings. Previous research has reported on how women in the IT-sector most often are to be found in peripheral roles (such as customer support and administration) or non-technological roles (such as project management and sales), even when these women have an educational background in technology (Davies and Mathieu, 2005). The women in this sample worked in various positions, both in highly technical as well as less technical roles, although none of them worked in a peripheric role. The findings imply that females working in the sector are encouraged to take on non-technological or less-technological positions, thus confirming Davies and Mathieu's (2005) research. Most of the respondents report on how they have received propositions of taking on roles such as project managers, thus moving away from more technological positions, although having technological background in both education and working life experience. Women who themselves were very focused on working with technology and did not have any interest in becoming managers or working with less-technological tasks had also been encountered with these types of propositions. Furthermore, the interviewed women describe it as more common for women in general to leave technological positions to take on managerial- or supportive roles;

System developer, female, 30 years old: *"I have encountered here anyways… that women are expected to step up and become managers instead of continuing with system development and programming… I have been told here that you know that you*

have the possibility to step up and become manager… that is nothing I am interested in, I want to continue with system development (…) I believe many of our female managers started out as testers or programmers, but then they ended up in a managerial position… I don't know why…"

Software tester, female, 50 years old: *"… the only specialist role women can get is to become project managers… I don't see that as development… or becoming scrum master… what is that?... just making lives easier for others so they can perform better… (…) you don't need to study six years at Chalmers to become project manager or scrum master…"*

Some women described how they had themselves pushed towards getting more hard-core technical assignments, whereas other women were content with taking on non-technical assignments and considering this is a potential future career development. Women who tried to take on more technological tasks describe how they were met with disbelief and an expectation of them not being interested in, nor wanting to, work with these types of tasks;

IT security specialist, female, 41 years old: *"I am noticing how many women are gliding into these project management roles and those roles instead, and sort of… sliding away from the technical aspects… (…) well, I would like to stay in the purely technical areas and not… I am not very interested in any management position or anything like that… (…) in my last position however I experienced, when I tried myself to slide over to the more purely technical assignments… that they didn't expect that it was something I wanted to work with"*

According to these results women are encouraged to take on less-technical roles, indicating how there are gendered assumptions of women being perceived as less technical compared to males. These findings further argue for how the ideal worker in technological IT-positions are based on masculine traits, thus being consistent with Acker's (1990) theories of the ideal worker. Acker (2012) further argues for how the ideal female role is based on female stereotypes where women are e.g. being more caring and thus are more inclined to work with "softer" tasks such as focusing on human beings rather than machines. This corresponds to the findings of this study where women were navigated into the less technical, 'softer' roles, which according to Acker (2012) are perceived as more suitable for the ideal female role. Pushing or navigating females into less-technical roles is further a key factor in the reproduction of gender segregation and gender inequality in the IT-sector, as this causes men

and women to work with different tasks and thus causing an uneven distribution of power and control (Acker 2006). In research conducted by Peterson (2005) it was concluded that in times of recession, companies were more inclined to letting women go, based on the argument that women were generally represented in non-technical or less-technical roles and thus they were not perceived as core competence in the organization. This was also the case in later research, where it was concluded that these types of 'softer' roles were not as highly valued as the purely technological and male roles (Peterson, 2007). Hence, as women are being navigated into less technical roles they are also running a greater risk of losing their jobs, as these functions are seen as less valuable, which further causes the male-dominance to persist.

6.3. Organizational impact

The result further shows how there is little knowledge whether the organizations are actively working with gender equality. The majority of the respondents did not know whether there exists an equality plan in the company. Some of the interviewed women report on how their companies were engaged in specific activities geared towards women. Such activities mostly focused on networking, introducing women to areas such as coding and attracting women to the IT-labour market. However, many of the interviewed women were poorly updated on what kind of activities, if some, the company was involved in and few knew whether they had an actual impact. Most of the women find it important that companies take action and actively seek to attract more women into the business. However, the importance of quality and organizational impact is highlighted. Some women find equality plans and equality committees to be good in theory, but they are rarely visible in everyday life or put into practice. A few respondents experience how their companies put effort into working with equality, for instance by talking about the issue and engaging in activities to attract other females, but most of the respondents reports on how the management refrain from discussing gender issues. According to Bradley and Healey (2008), individuals in higher positions may avoid discussing questions of discrimination, as this may have a negative impact on their own careers, and thus discrimination is reproduced and can persist.

6.4. Barriers

Most of the women in the study described a feeling of content with their career choices, and were positive towards the IT-sector. The majority found their jobs to be interesting and

reported on benefits concerning flexible working hours and easy access to finding new employment. However, the findings of the study showed how women in the male-dominated IT-sector are still faced with several different barriers, hindering, and challenges when trying to enter. Hence, these barriers are perceived as barriers to gender equality in the sector. This section describes some of these barriers.

6.4.1. Gender norms and stereotypes

Throughout the study the respondents reported on how gender norms and stereotypes of both females and males affected their possibilities within the sector. The result showed how these gendered norms and stereotypes originated from multiple sources, both from colleagues and customers, but they also proved to be a part of some of the respondents' ideas of masculinity and femininity. Women were generally described as being more sensitive, into design and wanting to work with humans rather than machines, or so called 'soft' areas. Males were seen more to be into technology, machines and being able to work more focused. However, neither of the studied women identified themselves with these gendered norms and stereotypes, which will be presented in section 6.5.

> **Project manager, female, 28 years old**: *"My experience is that many believe it to be a male profession, and that you have to be able to code and are sitting down in a dark server room and cannot get anywhere since it is for nerds and it is for guys…(..) And my softer approach to project management is seen as a weaker trait, rather than being the soft trait it is… which is sad… because it doesn't mean it is a female trait but just softer…"*

These gendered assumptions and stereotypes further showed to be shaping the ideas of both femininity and masculinity in general, where professions in IT were considered to be masculine occupations and women were more suitable to be working with humans (rather than machines);

> **IT security specialist, female, 41 years old:** *"….Yes I probably have the idea that more women are interested in how things affects humans and more… thinking of those issues… well it could of course be due to how expectations during the upbringing are affecting… but then it is something … well probably like hormones, affecting you to become more interested in humans and less interested in staying focused for ten hours straight and not talking to anyone and working with something on a computer… (…)*

it's partly, has something to do with ones composition… that you are more oriented towards sort of keeping a group together and sort of making sure people are doing good and like sitting for hours and focusing on one thing… feels like there are statistically fewer women wanting to do that"

These findings where females are described as 'softer' and males are perceived as 'tougher' and more interested in abstract things, such as technology, confirms Acker's (1990, 2012) theory of the how the ideal worker in skilled jobs is conceptualized upon masculinity. In studies conducted by Peterson (2005, 2007) it was concluded how the image of the successful IT-consultant was based on male ideals, thus strengthening the findings of this study.

Furthermore, the findings show how the interviewed women experienced a higher level of acceptance towards males to be loud, aggressive, or focused, whereas women were supposed to be calm, always ready to help and submissive. Many of the women reported on how males tended to interrupt and shutting women out of conversations. This, according to Acker (1990) is a strategy of reproduction of gender inequality, as it maintains males in dominant roles with power and control whereas women are submissive.

6.4.2. Derogatory comments and actions

Interesting findings show how almost all women initially describe a working situation where they feel welcome and are not paying that much attention to their gender. However, as the interviews continues, three quarters of the entire respondent group bring evidence of how they have been subjected to objectifying and/or sexist comments. Nevertheless, most women do not directly describe these comments and/or occasions as purely being based on their gender, but expresses insecurity to why they have been exposed to these types of activities. The level of experienced insecurity may be related to the nature of the comments and actions, as these often were difficult to detect and were, for instance, disguised as jokes or short, harmless remarks. However, as this proved to be a prominent pattern it is clear how these comments and actions constitute a barrier for women trying to enter the sector. In general, most women had experienced comments concerning looks and appearance, jokes concerning stereotypical feminine traits, such as women are better at multi-tasking, they are more caring and women belong in the kitchen.

Software tester, female, 50 years old: "*…she was in the kitchen making coffee when she heard comments from the guys, it wasn't intended for her to hear, but she still overheard a comment that well, yes, that is where she belongs (in the kitchen) …"*

IT-management, female, 53 years old: "*Like… come and sit over here so I get something nice next to me today… or if I am presenting something so… finally something nice to look at"*

Project manager, female, 28 years old: *"… oh it is so difficult to know where the limits are… but of course you have received a whole lot of comments and been exposed to power words… such as you are so sensitive, don't be so sensitive… which sounds completely natural… And yes, 'but guys can't multi task', 'women are whimsical', 'guys are strong and can run far'… 'girls want to help'… you know, very stereotypical jokes which are so unnecessary…."*

System developer, female, 31 years old: *"One colleague complained to me about there being no beautiful women at the office… and he told that just to me, it was not like we were a group of people talking but he simply chose to tell me… and that… no I don't really get it… if he didn't think of who he was talking to, but it just felt… I don't know what to do with that"*

According to Acker (1990), this type of language and actions could be seen as symbols used to reinforce the idea of the ideal male worker, as it keeps the women shut out, diminishing and devaluing them. The use of objectifying language or jokes on behalf of the female stereotype could furthermore be seen as a strategy to ensure stability in the male-dominance power, as these types of comments and jokes recreates the image and feeling of women being less-valued in the organizations, thus keeping women shut out of power and control. Furthermore, as the comments and jokes are difficult to detect, inequality regimes may continue to persist. Peterson (2005) presented similar result in her research on IT-consultants, where women had been subjected to objectifying language, but also were unable to immediately recognise or recall such events. This indicates a presence of gender blindness and an incapacity of seeing the organization as gendered. Similar findings were presented in previous research.

The result further shows how women received comments from males, questioning women's ability to logical thinking and claiming how males naturally are more logical, further strengthening the argument of males being perceived as the ideal-worker as well as leading to a reconstruction of inequality regimes (Acker, 1990, 2006);

System developer, female, 31 years old: *"But I was surprised you know, when it showed, or when we were sitting talking and one in the team said that well, males are thinking more logical than women…. And that… makes me feel a little uncomfortable, that someone is thinking that… a little shocked…not sure how old he is but he is 43 or something, so it is not like… it is a generation issue"*

System developer, female, 30 years old: "*…. this older man (working in the organization) asked me what I worked with and said that he thought it was fun with women working within engineering but also threw out these blunt comments of how it's more difficult for women to adopt to logical thinking… and those kinds of comments… not very nice to know stuff (opinions) like that exist in the house…"*

These types of comments are separating males from females, creating a structure where males are put in the higher levels of the hierarchy since they are perceived as having more natural abilities and are better skilled and equipped for working in IT-professions. The findings show how these strategies and inequalities are reconstructed, both through such comments, but also by alienating women from working in the IT-sector, especially in technological positions. The quotation below further illustrates how these reproductive processes occur, and shows how gender inequality in society persists;

System developer, female, 30 years old: *"a colleague had brought his sons to the office… they were about 11 years old or something like that… and found it very fascinating that a GIRL works with what I do (programming) and then used words like 'oh so you are one of THOSE'…And I thought one of those what? And my colleague replied and laughed, saying yes, she is one of THOSE… is this really the image you want to transfer onto your children I thought to myself, that it's weird that women are working in this sector and I sort of regret that I didn't ask him that question… but I was so shocked, that he said that and even laughed… Like, yes, I work with programming, ohhh so you are a GIRL, you are one of THOSE… (…) it felt really weird… a sadness of how these children are going to grow up in this mentality, that it is continuing… that he didn't just speak up"*

Unwanted attention was also a re-occurring issue during the study. Some of the women describe how they were being approached in unprofessional manners, such as being asked out on dates on inappropriate levels, being subjected to sexual harassment and being followed in the office by male colleagues.

PhD student in Computer Science, female, 27 years old: *"… in like an unreasonable amount of people approaching me… asking me on dates…which to me for starters felt very strange and synthetic… (…) I don't know how to describe it but the sensation I had was that I was just being considered for my female attributes… like ehh… aren't you thinking that perhaps I am also a person who has interest in this field because of the topic itself… perhaps that's more relevant I don't want to be treated as the female in the group… (…) of course they weren't intending to discriminate me or intending to make me feel uncomfortable but in the end I felt uncomfortable because I felt I couldn't be friendly with anybody because their only thought is that if a female is friendly then… maybe she wants to go out…"*

Project manager, female, 28 years old: *"But… no… it could have been portrayed already my first semester when I was sexually harassed in weird text messages from a class mate… well yes, it happened very often to females in IT-educations… I experience it as rather common unfortunately…"*

Such actions cause women to not being seen as professionals who are legitimized for their knowledge and skill within the working field, but rather being devalued into becoming an object based on sexuality, keeping males in control and women perceived as less skilled.

6.4.3. Low expectations on knowledge

Moreover, the result showed strong indications on how women's knowledge and skills are being questioned. Almost all women in the study reported on how they as females were expected to have less-technologically knowledge in comparison to males. Neither did age nor years of working experience prove to have major impact on these expectations, as women of different ages and with working experience ranging from 10 months to more than 30 years, report on similar experiences. This was also true independent of the profession, as both women in highly technical roles such as programmers and system developers as well as women in less-technical roles, such as project managers, had experienced such expectations.

PhD student in computer science, female, 28 years old: "*The attitude is that women don't have the skills and competences… you need to fight for your status. It's almost perceived as something weird, like what are you (a female) doing here… although no one is saying it aloud there is an idea that men is better and more skilled. Women can do humanitarian stuff"*

IT security specialist, female, 41 years old: "*… I have experienced that sometimes you are met by a scepticism, that are you really going to do all these technical assignments, and that you sort of have to build up a certain level of trust before people sort of accept that THIS is my area (technology)"*

Having your knowledge questioned and experiencing it as others expected you to be less competent was a re-occurring problem for the interviewed women. These types of expectations also proved to derive from various groups of people in society such as from colleagues, customer and clients as well as former class mates and family members;

Project manager, female, 28 years old: "*Without being too negative I would say it is very frustrating… my partner is also working within IT and we… talk a lot about the prejudice he has, for instance about my knowledge… and he is of course not trying to do something negative but he just expects me to not have some of the most basic knowledge and competences … which to me is something obvious for someone working within IT to have"*

PhD in computer science, female, 27 years old: *"…I did sense on a few occasions even from teaches… that they (females) were in some way patronized a little more, they were not expected to do as well somehow… so in an essence they were treated in a bit of a condescending way… I remember some instance when a team were presenting their work, because they had a project to perform… it was very clear the difference in how the teacher proceeded in the question section of their presentation… the difference between the female group and the rest of the other group which were just based on men… they didn't get as many questions and he stopped much earlier sort of with a sense of oh yeah… that's enough for YOU"*

However, not all women perceived it as something purely negative to be considered as having less knowledge. Some of the respondents recognised this as a positive consequence of being a woman, since it made it easier for women to ask for help, admitting to not knowing, and receiving more support;

IT Security specialist, female, 41 years old: *"… during the education we found there to be advantages of being a girl… because if you started in computing there were no expectation on you to know anything as a girl so if you asked for help you always got help… while I have heard of guys who were given a worse treatment when they asked… so maybe then there was an advantage of getting help easier…"*

Other respondents recognise the low expectations of knowledge as a disadvantage, since such perceptions may result in women missing out on opportunities in the organization, based on the belief that women are not suitable or competent enough. For some women, this proved to be true, as they had experienced how males with less knowledge and skill had been offered more interesting job assignments prior to themselves.

> **System developer, female, 31 years old:** *"… guys are expected to have more knowledge which they never need to prove, while I need to prove to a higher extent that I do have the needed knowledge… and I think that may diminish your possibilities, because you may not always have the time and opportunity to prove your knowledge…"*

> **System developer, female, 42 years old:** *"… when we worked with this company we thought it was a little strange and we experienced how we were pushed aside… because yes, this is difficult so a man must do this… and they give those assignments to a male colleague… and the males working here got to work with cool new development of software and we get to do boring task and support… and it was really strange since we had much more experience than those guys…"*

These findings support the theoretical framework by Acker (1990) of the ideal-male worker. As women systematically are perceived as being less competent and not corresponding to the expected image of the ideal worker, males keep the dominant position and remain in control.

6.4.4. Lack of women and female role models

Almost all respondents report on low levels of women during both education and working time. However, there are some variations. The more technological the education or profession, the fewer the women. This is not a surprising finding as statistics of the IT-sector describe the same picture, but rather confirms the statistical facts. What on the other hand was interesting was how the women responded when asked to describe the distribution of gender in both working life and during studies. When describing the gender distribution in words women perceived it as fairly good, but when asked to give an estimation in figures women proved to be a clear minority. This can be explained through how many of the women during times in their careers had been working as the only female in the group or department, and some of the women were still the sole woman in the working place. Thus, many women described how they had gotten used to being the only woman and having female colleagues –

especially having several female colleagues, could be perceived as if there were many women although the gender distribution were very skewed.

> **System developer, female, 32 years old:** "*I can't say what it is like because I have never ever worked with another female programmer… in my team now there are 6 guys and me… I am always the only female programmer (…) since I started study from the very beginning until now… that is like more than 10 years... I am always the only girl in a group of guys"*

The lack of women in the sector is creating barriers for females in multiple ways. One strong finding is how the consequence of few women working in IT makes it difficult to find female role models to be inspired by and getting support from. This proved to be especially true in the more technical roles, where both the number of females entering is low as well as, according to the findings, women also seemed to leave such technical positions during their careers. With few female role models the respondents experienced it as difficult to find individuals to identify oneself with, especially concerning future career development.

> **IT-architect, female, 37 years old:** *"When there are no females working it is difficult to see a future, the ones entering the sector are most often young guys, motivated and with fresh knowledge… it can be quite hard to keep up with that competition and that's when you might feel the gap extra much (…) it is a general problem that there are no proper role models… within IT…it's a problem since… because… looking at women… you do not really see anyone in a technical position after the age of 40… I'm sure there are exceptions, but I have never met anyone…(...) so it is pretty difficult to sort of see a future within the profession…"*

According to research by Michaidis et. al. (2012), role models are a key factor for successful development, as a role model signals support and inspiration as well as constituting someone to look up to. Previous research conducted on male-dominated sectors conclude how female role models are crucial when for instance attempting to motivate more females to enter the sector, as role models symbolises someone to identify with (Michaidis et al., 2012). As discussed in previous sections, most of the interviewed women in this study opted for more stereotypically feminine careers prior to entering the IT-sector. According to Michaidis et al. (2012), one of the explanations to these choices could be the lack of female role models in the IT-sector. This is illustrated in the following quotation, from an interview with a female interaction designer who initially thought of studying to become a nurse or a teacher;

> **Interaction designer, female, 27 years old:** *"Well… teacher because I find it interesting with pedagogic and … nurse…I don't know really… why did I think that… well I like biology… and I was good at it… well, I think it's also maybe because you don't have as many role models in other occupations… because, you know about women who are nurses and teachers and then it's sort of… it becomes a lot easier to see, that yes I can actually become this… but engineer… there I felt… I could count them…"*

Findings further describe how women who had female colleagues to a higher extent were able to detect ongoing discriminating and segregating activities, by discussing events and comments with each other, and by supporting and aiding each other. Women working as the sole female in the department proved to be less likely to be able to relate similar activities to their gender and were also less likely to admit to and recognise such activities, as many of the women were doubting both the actions, as well as the very intention and intensity of the actions. Being able to discuss and find support in female colleagues with similar experiences thus proved to be of importance.

> **System developer, female, 31 years old:** *"I don't think we would have discovered how he is following us around the office, wherever we go, if we hadn't been socialising and talking outside of the work place… we might never have noticed that we have the same problem… with him sort of (stalking us)"*

> **IT-manager, female, 34 years old:** *"I am a mentor for a girl who had a summer placement at one of our clients, and the client starts hitting on her and asking her on dates… then it's good to have me there who can take it rather than being all alone in the situation (…) without that support she would probably rather just have joked about it instead..."*

Acker (2006) argues for how visibility of inequalities is a key factor for inequality regimes to either persist or cease. Often, inequalities remain hidden, as the individuals in majority are unable to detect inequalities and remain blind to such actions. Thus, there is little chance of inequality regimes to be questioned and contested, as the only ones being able to recognise such activities is the minority group. In this sense, the low levels of women in the IT-sector constitutes a barrier towards changing the ongoing inequalities and achieving equality.

6.4.5. Being neglected

Some of the women further describes how they experience it as if they are becoming invisible at times in the work place. They are being shut out by males, not getting their opinions heard, being interrupted, or simply being neglected. This was often combined with derogatory comments, such as being called "sweetie" ("lilla gumman"), and being ridiculed.

> **Software tester, female, 50 years old:** *"You aren't visible, they don't listen to you… what you accomplish isn't valued and you aren't being raised or praised as much as the guys… eventually you come to believe it (…) in company X it was the worst… I was 27 and my colleagues were 60… it was awful, I was the little sweetie and they decided everything… I wasn't visible at all..."*
>
> **Project manager, female, 28 years old:** *"Things like being hushed at because people don't think you know what you are talking about when you raise an opinion… or maybe because you have a lot of things to say…. Or that you need to prove yourself to an unnecessary extent… those kinds of things"*
>
> **PhD student in computer science, female, 28 years old:** *"It is terrible… after coming back from my parental leave no one says hello anymore… I have no one to eat lunch with or talk to… so I started to hang out with the administrators, who are all women. It's like being the black sheep. They don't look at me, just keep their gaze on the floor and are only spending time with each other.... I'm not feeling harassed but they are not listening to me, it's much more difficult for women to get their opinions through."*

According to Acker (2006) control and compliance are important factors for inequality regimes to be maintained. Shutting women out, silencing them and neglecting them could be argued to be a way of keeping control and thus reproducing inequality regimes. As one of the respondents point out in the above quotation, a devaluation process of females' work and effort causes women to lose belief in oneself, thus creating further barriers to both entering and advancing in the male-dominated IT-sector. Such barriers, based on self-confidence and self-efficacy are being discussed in the following section.

6.4.6. Self-efficacy and Self-confidence

Findings showed how most of the women experienced males to be over-estimating their competence as well as women more often questioned whether they were skilled enough to take on certain assignments and tasks. This caused women to, in some cases, fall behind male colleagues who did not question their abilities to complete the task.

> **System developer, female, 30 years old:** *"Yes, when it comes to dividing the assignments… uhm… and who takes the most fun and interesting assignments first… it's the ones with the best self-confidence…. I think, or I have at least noticed that women, including myself, are a bit more careful, maybe you aren't taking on assignments because you think it through one extra time; is it too difficult?… will I manage?… while male colleagues rather jump at it straight away and are maybe thinking or noticing afterwards that… it was more difficult than what they thought"*

Furthermore, some of the women express how they chose not to take on roles such as system developers, although they studied system developing and programming during their education;

> **Project manager, female, 28 years old:** *"In computer educations there are often already many students who are good at programming and who wants to have a label that they are so…(...) I think I never saw the need… of becoming an expert in programming, but rather how we best could manage the project (…) People with deep technological competence had more troubles to sort of 'programme' their organization somehow, keeping to deadlines and so… I think I preferred to help them with that rather than becoming a programmer myself"*

Several women also described how they had an interest and aimed at becoming system developers and working with programming, but considered themselves as not being competent enough compared to fellow students or colleagues and thus ended up not pursuing the goal of working in such a position;

> **Software tester, female, 50 years old:** *"I sort of felt that I wasn't so… good so I decided that I'd start off as a tester and then… later on I'll be programmer but then I got stuck in this position"*

According to research by Michie and Nelseon (2006), self-confidence was one of the most important factors determining whether an individual was to enter or stay in a certain position.

Furthermore, Michie and Nelson's (2006) study concluded how both women themselves but also males had low-confidence in females' capabilities, thus creating barriers for women in the IT-sector. By applying Acker's theories of gendered organizations and the ideal-male worker, women's lack of self-confidence can be seen as a response to not being able to fulfil the ideal-role and thus they are discouraged to believe in their own skills and possibilities to become successful.

6.4.7. Female competition and homosociality

The findings of this study show that interviewees experience internal competition among the female workers within the sector, and that the gender segregation has created, in a somewhat contradictory manner, a feeling of there not being enough room for other women.

> **Software tester, female, 50 years old:** *"I have noticed that we women are competing with each other in a way which guys don't. In the IT-business I think that it is because… it is my experience at least… since there are so few women on the level it is difficult for women to enter… and if a woman enters she must focus on surviving and keeping herself there rather than on seeing other women"*

> **IT-management, female, 34 years old:** *"I experience that many who are in my position and who are females are just as the males and play along in their game… and then it doesn't matter if you have a position where you can play an impact...(...) and instead you just run as it always has been, you know, that it should be a bit cool and… guyish… and not taking active steps to raise and help women to grow"*

These findings are of particular significance as Bradley and Healey (2008) finds that disadvantages may be remedied through collaboration and self-organization in minority groups. However, on the contrary to their findings this study show how internal competition constitutes an additional barrier, as described above. The experience that female workers have of competing amongst themselves could also be understood as a function and consequence of the way the idea-male worker is being perceived and promoted. Since the stereotypical ideal-male worker is seemingly accepted (by both male and female workers) it leads to the perpetuation of male norms and masculine ideals (Acker, 1990). Thus, as highlighted in the previous quotation, female workers also contribute to the reproduction of inequality regimes (see also Acker, 2006).

Additional findings demonstrate that the interviewees of this study thought that male workers had access to more efficient and professional IT-networks, as well as keeping their male friends closer and making sure these friends were promoted into higher positions when possible. The reproduction of inequality is thus working in different ways and on different levels, in accordance with the processes of homosociality. Homosociality, defined as 'males choosing males' is also significant for this study as such processes of selection and promotion are structured to promote same-gendered individuals. Thus, homosociality has been interpreted as a strategy for males to stay in power (Hammarén and Johansson, 2014). As males are maintaining power there is little chance of inequality regimes to alter, as such a change would constitute a risk of males losing their advantaged positions and hence, homosociality as strategic process is likely to continue (Acker, 2006 & Hammarén and Johansson, 2014).

6.4.8. Gender and age

Age was a requirement included in the sampling for the study, as it enabled the researcher to investigate in whether women of different age-groups experienced differences in terms of barriers and the reconstruction of inequalities. However, this was not the case. When coding the interviews and analysing the answers no clear patterns of differences in terms of gendered barriers and inequalities in relation to age emerged, but on the contrary women of different age groups reported on similar experiences. Although, findings show how older females in the study expressed how they believed that the gendered structures they themselves had experienced, had changed as a younger generation entered the market. Thus, these women attributed stereotypical views of masculinity and femininity to an older generation, and thought such perceptions and attitudes would change in time. Nevertheless, women of the younger generation in the study did still report on similar experiences and even in some cases attributed the stereotypical and derogatory behaviour to younger males. These findings illustrate how deeply embedded these gendered ideals are, and as Muñoz Boudet et al (2013) further concludes in their research on how constructed gender roles manage to stay consistent over time. Acker (2006) argues for how the deeply hidden and embedded structures of inequalities only can be changed after being acknowledged, and as the findings of this study show how barriers to gender equality is attributed to belonging to older generations instead of being recognized, it is likely to assume that these inequality regimes will persist.

6.5. Identity

How women perceive themselves and how they are identifying themselves proved to be interesting findings, as this provides insights to how they are navigating the gendered ideals existing in the IT-sector. Results clearly indicate how women considered it as positive to be able to identify with masculine ideals and cultures, as well as how stereotypic feminine traits were considered less attractive. Many of the women discussed how they did not think of themselves in terms of gender, but rather opted for a gender-neutral position. However, this neutral positon often proved to still be based on masculine traits, e.g. as women deliberately opted out of pink colours in clothing but were not reluctant to wear blue. Many of the women also described how they during younger years had been involved in other male-dominated arenas, such as being interested in and exercising stereotypically male sports, or by having many male friends. Such experiences were perceived as helpful and positive for them in their current positions, indicating how the IT-business is a male gendered sector.

> **Project manager, female, 28 years old:** *"I have three brothers… so I'm a little… I have most often had guy friends rather than female friends and rather been involved a lot in that sphere… many of the other girls attending the same education as me (..) had a harder time adopting to and entering the culture because they didn't have a background in technology or something… not NERDY but games and stuff… it was an easier threshold to cross then…"*

Furthermore, many of the women in the study distanced themselves from the general view of what is considered female, describing themselves in terms as "not being very girly" or "I am not really that feminine". Many of the women also distanced themselves from the normative idea of women, separating themselves from what is perceived as feminine, for instance by not using much make up, caring too much about looks and aesthetics and not talking about family and children to a high extent.

> **System developer, female, 32 years old:** *"Before I used to feel like people had a role for females in the IT- industry... you didn't wear a nice shirt… maybe you have a NASA-t shirt and didn't wear make-up in and sort of this tomboy kind of way… and like they expected IT-girls to do this..."*
>
> **IT-security specialist, female, 41 years old:** "*… have noticed that I'm having problems keeping up doing many things at the same time… so maybe a bit unfeminine*

in that way… that I am sort of better at focusing on what I'm doing... (…) feels like there are fewer women doing that"

IT-architect, female, 37 years old: *"… you avoid talking about children as much… now I can do it because they are older… not as much problems… I didn't talk about being a parent when they were very young (…) and then I don't do that much girly stuff in general so… nothing particularly female… and I don't use that much makeup…"*

An illustrating example of how women experienced a need to detach themselves from stereotypical feminine traits is provided by one of the respondents. She describes how she felt a need to separate herself from certain parts of her former life when she decided to change career path and started to study at a university of technology. She stopped caring about what clothes she put on, cutting her hair and paying attention to her looks. As she changed her appearance in this way she felt like she was being more valued for her skills and competence, and less judged as not being smart enough.

System developer, female, 27 years old: *"…I adjusted myself… toned down myself quite a lot (…) stopped colouring my hair and just let it grow, didn't care that much of what clothes I put on… just stopped (…) because it felt like… don't know… no one else cared either and then you might think someone who cares has the wrong focus (…) I felt like I was treated differently when I adjusted, was more respected and focus was put on what I said rather than what clothes I wore"*

Thus, it seems as if women not only do not perceive themselves as less-feminine but also in fact are treated differently from the peer-groups and surroundings if they distance themselves from the ideal-female.

By describing themselves as not very girly, not interested in feminine activities or having a background where they identified themselves with males, such as being accustomed to a male culture by having few female friends, the women are disconnecting themselves from being a 'typical' woman and thus, more suitable to work in a context based on male terms (Acker, 2006). However, the women describing themselves as not very feminine and not seeing themselves in the light of a stereotypic woman could also be an indication of how these women felt unable to fit into the ideal role of a female, and thus located themselves in a sector based on male norms. Several of the women describe how they experienced expectations on how they should want to work in an occupation with a strong connection to caring and helping, however such a job did not suit them. Furthermore, women describe how they always

have been considered as being ‘weird’ in the perspective of other girls or how they mostly had male friends anyway. Such experiences may indicate how these women failed to fulfil the female ideal-role and thus women are detaching themselves from what is perceived as stereotypically feminine. Such findings proved to be true especially for females working in highly technological roles, once again indicating how technology is deeply connected with the male ideals. Statistics presented in the report *Young women and IT* (Unga kvinnor och IT, 2016) shows how women who do perceive the IT-sector as a sector for a potential future career, only consider non-technical roles as interesting whereas attitudes towards technical and more traditional roles still are negative and perceived as masculine. This is interesting, as it shows how women also of younger ages are unable to identify themselves with the ideal-worker in technology and the most valued IT-roles and thus, are in line with results from this study.

6.6. Female strategies in a male-dominated arena

The following section covers findings concerning how these women are coping with the experienced barriers, as presented in Section 6.4, and with belonging to the minority gender group in the male-dominated IT-sector. Results indicate how a common strategy is to maintain focus on the assignments, not paying attention to colleagues and social processes in the organization. Some women claim how they simply chose not to care, although they are aware of discriminatory processes, as they do not see any benefits in paying deeper attention to the problem or they have tried and failed in the past. Another well-used strategy is to downplay comments and actions, rationalizing such behaviours by connecting them to other aspects than gender or by arguing for how such actions or comments were not ill-attended or were meant as a harmless joke. Some respondents further describe how they are so used to being belittled or expected to be less-competent and lacking knowledge, especially when they are new to a group of people, and as a strategy to counteract such behaviours starts off by proving their skill, e.g. by taking on the most difficult tasks or discussing highly advanced technology.

> **IT-architect, female, 37 years old:** *“… there’s always an element where you have to prove that you can do the work (...) you can’t do it well just one time, because everyone can do it one time, but must do it well until you feel like you have established yourself as… competent…”*

The strategy of detaching oneself from feminine traits and stereotypes was elaborated in Section 6.5., where women deliberately separated themselves from what is perceived as feminine, such as make up and pink clothing.

All these strategies have the common denominator of not raising awareness of gendered inequalities, nor are they counteracting the masculine ideals. According to Acker (2006) a change of inequality regimes can only be achieved through the process of recognition, and as women refrain from challenging the male-norms it is unlikely that these inequalities will change, due to how individuals constituting the norm – in this case males, are unable to see such inequalities.

Findings further showed how many women experienced low levels of self-efficacy and an underestimation of their technological competence. Acker (2006) describes how women who adopt behaviours and strategies connected to masculinity, such as high level of self-confidence and dominance, are risking being labelled as 'bitches' or 'witches', since she in such cases is acting against the expectations and female gendered ideals. This double bind dilemma is the basis of research conducted by Peterson (2010), which showed how women used low levels of technological self-confidence as a strategy to navigate in the male-dominated arena. By expressing low-levels of self-confidence the women did not risk breaking the gendered rules and thus avoided punishment. The results in this study confirms these statements, where men were considered as having higher levels of self-confidence, taking on more advanced tasks and estimating their competences higher than females.

7. Discussion and Analysis

The objective of this study is to contribute to research on horizontal gender segregation in Sweden, by analysis of female professionals' experiences of the male-dominated IT-sector. The IT-sector is of particular interest, as it is constantly developing with an urgent need for competence and is central to Sweden's political and financial presence on the global market. In view of this, it is remarkable that women are still not entering the sector and that it continues to be dominated by males. Thus, this study has therefore aimed at exploring the experiences of women who manged to enter and were already working in IT-occupations. The focus of this study has been on the potential barriers that these female professionals perceive and the ways in which such barriers contribute to the reproduction of inequalities.

The findings have showed that gendered ideals are deeply embedded into the IT-sector, and that domineering ideals about professionality and work are based on masculine norms and traits, thus contributing to shutting women out. Acker's (1990, 2006, 2012) theories of gendered organization, the ideal worker and inequality regimes all contributed to highlighting the inequality processes and barriers challenging women in the sector. Furthermore, Acker's theories recognised the unlikeliness of inequality regimes to change, as individuals belonging to the norm and the majority in organizations are unable to detect inequalities, and the low numbers of females entering the sector makes it difficult to recognise such activities as discriminatory.

The findings also demonstrate that the female professionals of this study did, in fact, not opt for the IT-sector as their first career option, but started off in more traditionally female areas before changing career path. It could be argued that these women made initial career choices based on gendered female stereotypes, norms, and ideal-roles and thus, it is clear how the male-ideal roles constituted a barrier towards women and gender equality in the IT-sector. Moreover, these male-ideal roles in the IT-sector further causes women to be kept out of the highly technical positions and assignments, as the findings showed how women were navigated into non-technological roles. Previous research (Peterson, 2005; Peterson 2007) illustrates how such non-technological roles are perceived as less-valuable causing women to be more likely to lose their jobs in times of recession. This finding therefore also argues for how barriers towards gender equality are embedded into the male-ideal role of the IT-sector. Such structures further cause a reproduction of gender inequalities. Moreover, the findings show that although some organizations have initiated a discussion to improve gender diversity and equality in the IT-sector, most of the companies in this study have not prioritised these questions and little has been done to acknowledge, let alone address or change, the situation within the organization. The lack of initiatives towards gender diversity signal that gender equality is not perceived as a problem or relevant and further legitimizes the male-dominance in these organizations. Furthermore, activities that were conducted in organizations, such as networking events for females, were mainly aimed at attracting new women and creating interest for the IT job market. In other words, these initiatives in recruitment and advertising although being positive, were not directed at acknowledging the ongoing structures of inequalities, which further implies the lack of awareness of how such inequalities are constructed and reproduced.

Gender stereotyping was confirmed as a major barrier to gender segregation in the male-dominated sector, where stereotypical traits and norms were attributed by both males and females. The ideal worker, the man, is seemingly perceived as logical, focused and dominant as opposed to female workers. However, female attributes (submissive, feminine, nurturing, multi-tasking) were discarded by the interviewed women of this study who instead described themselves along the lines of male norms. Such interesting findings show how women both were adjusting to male-ideals but also detached themselves from what is perceived as stereotypically feminine. By extending the theoretical framework by Acker, such separating activities imply how femininity and associated female ideals and traits are seen as less valuable and thus not desirable. Moreover, the findings show how women experienced a change in attitudes when downplaying feminine attributes and appearance. One woman in the study reported on how she felt she needed to "break" with her former life when entering the IT-arena, and as she stopped paying attention to clothing and appearance she became more accepted. This implies how women are unable to identify with the ideal-role in the IT-sector and as femininity is considered a liability, women turn way from female attributes in an attempt to safeguard their position in the male-dominated environment.

The very few female role models in a male dominated sector such as the IT sector also have a negative impact on the female workforce and creates a significant barrier to gender equality. Access to role models signal possibilities by showing career paths available to other females and that other women have succeeded. The lack of role models is instead enforcing feelings of not belonging, job uncertainty and insecurity. This lack of female role models combined with the notion of the ideal-male worker and the discard for traditional understandings of femininity, does not leave much room for female professionals but to adapt as much as possible. In terms of gender biases, these stereotypes – on both sides and with regards to both masculine and feminine roles – contribute to shut female workers out.

The impact of the notion of the ideal of the male worker on the women workers, who are by default excluded by this ideal, is thus that these women are left with no alternative ideal or role model to turn to. Instead a 'forced' distancing and detachment from traits traditionally seen as feminine or 'girly' occurs - which may or may not at all be of relevance for the women working there. Thus, gender ideas in male dominated workspaces such as these creates a bit of a prison for women.

Further consequences of these notions and structures are anxiety as well as a feeling of not belonging, similar to previous conclusions by Fine (2010). Moreover, such perceptions and

experiences seems to lead to feelings of having to prove oneself as well as causing internal competition within the minority female groups. On the contrary to what might have been possible when belonging to a minority group, being a minority group in terms of power relations between minority-majority (Elgenius, 2017a) such as helping and supporting each other, women reported on a sense of internal competition. This internal competition cause women to work against each other instead of collaborating. Similar findings are found in in research on ethnic minorities and socio-economically disadvantaged groups on the labour market during and after recessions (Elgenius, 2017a; Elgenius 2017b) and makes these finding even more interesting. The lack of collaboration is of special relevance in view of Bradely and Healey‘s (2008) research that argue for collaboration and self-organization as key factors to remedy disadvantages.

To counteract gender segregation, it is vital to acknowledge gendered inequalities and avoid processes of gender blindness (Acker, 2006). However, according to the findings of this study, the female professionals most prominent strategies was not to recognise their disadvantage and but rather to avoiding the subject, reduce derogatory comments to harmless jokes and by downplaying segregation actions. Adding to this, the internal competition discussed above, the lack of networks, self-organised groups and other collaboration between female IT professionals marginalised women who did speak up further so little could be accomplished.

7.1. Implications for further research

Horizontal segregation and gendered ideals is a research field with many questions yet to be answered. For the scope of this study a few of these have been addressed, but further research is needed, especially focusing on what impact female role models and identification processes in male-dominated arenas have on experienced barriers.

With the findings in mind, a future study would focus on intersectionality and combined bases of discrimination, such as ethnicity and gender. The sample group in this study mainly consisted of self-defined Swedish women, and only few of the respondents had other ethnic backgrounds and prevented ethnicity to be further analysed. However, the few interviewed women with self-defined non-Swedish backgrounds did report on experiences of discrimination both related to gender and ethnicity, implying that this would be central to investigate further.

Further research on female strategies of detaching oneself from femininity is also needed, and how such actions affect females interest in pursuing a career in the IT-sector. Interesting findings of this study which needs to be further explored is the internal competition within minority groups. Such internal competition has previously been found in completely different studies, focusing on ethnic minority and vulnerable groups on the labour market, where findings showed how members of such groups exercised hostility instead of collaboration. Such processes argue for reproductions on inequalities to sustain.

8. Conclusion

The IT-sector in Sweden is characterised by gender segregation and dominated by male employees. Its need for competence is constantly increasing as IT and technology continues to develop at a fast-paced tempo. IT is no longer restricted to only exist in a singular sector, but plays a key role in all sectors and throughout society today (Itotelekomföretagen.se, 2017). However, the sector is still one of the most segregated sectors in Sweden, only being accessed by half the population, males, while the level of females entering continues to stay low and even decreasing.

The objective of this study was to explore the experiences of women already working in the IT-sector today, as well as to investigate in experienced barriers to gender equality and how such barriers contribute to the reproduction on inequalities and inequality regimes. The findings of the study paint a complex picture, where barriers are to be found deeply embedded into both the structures of the organizations, but also into the ideas and norms which together constitutes the ideal worker for professions within IT.

The study highlights the problem of how the ideal-male worker excludes women due to their gender. The low numbers of women in the sector further contributes to there being very few female-role models for women to identify themselves with. This leaves women no alternative but to adjust to the male norms, causing women to detach themselves from femininity. Such detachment is thus used as a strategy to increase women's access to gender equality in the male-dominated sector, but the consequence is the reproduction of inequalities and gender segregation as the female-role continues to be devalued. Furthermore, Bradley and Healey (2008) argues for how collaboration of minority groups may function as a remedy on inequality processes. On the contrary to such collaborative processes, findings in this study

points towards internal competition in the minority female group. To conclude, this study highlights how the male-dominated IT-sector is highly gendered and how the male ideals and gender stereotypes constitute multiple barriers towards gender equality.

9. References

Abiss, J. (2011). Boys and machines: gendered computer identities, regulation and resistance. *Gender and Education*. 23(5): 601-617

Acker, J. (1990). Hierarchies, jobs, bodies: a theory of gendered organizations. *Gender & Society*, 4(2): 139–58.

Acker, J. (2006). Inequalities regimes: Gender, class, and race in organizations. *Gender and Society, 20*(4): 441–464.

Acker, J. (2012). Gendered organizations and intersectionality: Problems and possibilities. *Equality, Diversity and Inclusion: An International Journal, 31*(3): 214–224.

Annetorp Hörnsten, C.; Asplund, J.; Berglind, K.; Gustavsson, H.; and Mångs, A., (2016) Var finns jobben? Bedömning till och med första halvåret 2017 och en långsiktig utblick. Arbetsförmedlingen.

Bradley, H., and Healey, G., (2008). *Ethnicity and Gender at Work: Inequalities, Careers and Employment Relations.* Palgrave Macmillian UK.

Bryman, A. (2002). Samhällsvetenskapliga metoder. Malmö: Liber AB

Charmaz, Kathy (2006). *Constructing grounded theory*. A practical guide through qualitative analysis. London: Sage.

Christensen, P. (2017). *Långt till jämställdhet i it-branschen, men mycket kan göras*. [online] Unionen opinion. Available at: http://unionenopinion.se/analyser/langt-till-jamstalldhet-i-it-branschen-men-mycket-kan-goras/ [Accessed 6 Feb. 2017].

Cross, C. and Linehan, M., (2006). Barriers to advancing female careers in the high-tech sector: empirical evidence form Ireland. *Women in Management Review*. 21(1): 28-39

Crump, J., B., Logan, K., A., & McIlroly, A. (2007). Does gender still matter? A study of the views of women in the ICT industry in New Zeeland. *Gender, Work and Organization.* 14(4): 349-370.

Davies, Karen & Mathieu, Chris (2005). Gender Inequality in the IT Sector in Sweden and Ireland. National Institute for Working Life Sweden, Stockholm. Elanders Gotab

Digital Single Market. (2017). *The Digital Economy and Society Index (DESI)*. [online] Available at: https://ec.europa.eu/digital-single-market/en/desi [Accessed 12 May 2017].

DN.SE. (2017). *It-branschen hotas av brist på kvinnor - DN.SE*. [online] Available at: http://www.dn.se/ekonomi/it-branschen-hotas-av-brist-pa-kvinnor/ [Accessed 6 Feb. 2017].

Elgenius, G., (2017). 'Ethnic Bonding and Homing Desires: The Polish Diaspora and Civil Society Making'. In Jacobsson, K. & E. Korolczuk (eds.), *Civil Society Revisited: Lessons from Poland.* Oxford: Berghahn Books.

Elgenius, G., (2017). 'Social Division and Resentment in the Aftermath of the Economic Slump'. In Shana Cohen, Christina Fuhr and Jan-Jonathan Bock. 2017. *Austerity, Community Action, and the Future of Citizenship in Europe*. University of Bristol: Policy Press.

Erlandsson, A. (2017). *Långt till jämställdhet i it-branschen*. [online] SvD.se. Available at: https://www.svd.se/langt-till-jamstalldhet-i-it-branschen [Accessed 6 Feb. 2017].

European Commission (2013). *The current situation of gender equality in Sweden – country profile.* [online] ec.europa.eu. Available at: http://ec.europa.eu/justice/gender-equality/files/epo_campaign/131006_country-profile_sweden.pdf [Accessed 29 May. 2017].

Fine, C. (2010). *Delusions of Gender: The real science behind sex differences.* Icon Books Ltd. London

Global Gender Gap Report 2016. (2017). *Global Gender Gap Report 2016*. [online] Available at: http://reports.weforum.org/global-gender-gap-report-2016/#read [Accessed 6 Feb. 2017].

Gurrier, Y., Evans, C., Glover, J., Wilson, C. (2009). Technical, but not very… constructing gendered identities in IT-related employment. *Work, Employment, and Society.* 23(3): 494-511.

Hakim, Catherine (2000). *Research design. Successful design or social and economic research*. Routledge

Hammarén, N. & Johansson, T. (2014). *Homosociality: in between power and intimacy.* Sage, open. 1(11): 1-10.

Hammarberg, K.; Kirkamn, M. & de Lacey, S. (2016). Qualitative research methods; when to use them and how to judge them. *Hum Reprord* (3): 498-501.

Heath, A., Martin, J. and Elgenius, G., (2007). 'Who do we think we are? The decline of traditional social identities'. *In Park, A., Curtice, J., Thomson, K., Phillips, M. and Johnson, M. eds., British Social Attitudes: the 23rd Report – Perspectives on a changing society*. London: Sage for the National Centre for Social Research (NatCen)

Itotelekomforetagen.se (2017). *IT&Telekomföretagen - Statistik kvinnor och män*. [online] Available at: https://www.itotelekomforetagen.se/fakta-och-debatt/statistik/statistik-andel-kvinnor-och-man [Accessed 6 Feb. 2017].

Itu.int. (2017). *ITU | 2016 Global ICT Development Index*. [online] Available at: http://www.itu.int/net4/ITU-D/idi/2016/#idi2016countrycard-tab&SWE [Accessed 12 May 2017].

Michie, S. and Nelson, D., L., (2006) "Barriers women face in information technology careers: Self-efficacy, passion and gender biases", *Women in Management Review*, 21(1);10-27: doi: 10.1108/09649420610643385

Michailidis, M., P.; Morphitou, R., N., and Theophylatou, I. (2012). Women at work, equality versus inequality: barriers for advancing in the workplace. *The international Journal of Human Resouce Management.* 23(20): 4231-4245

Muñoz Boudet, A., M.,; Petesch, P.; Turk, C., and Thumala, A., (2013). On Norms and Agency: Conversations about Gender Equality with Women and Men in 20 Countries. Directions in development: human development. Washington, DC: World Bank

Peterson, H. (2005). *Gender, power and post-bureaucracy: Work ideals in IT consulting*. PhD dissertation, Uppsala University

Peterson, H. (2007). Gendered work ideals in Swedish IT firms: Valued and not valued workers. *Gender, Work and Organization, 14*(4): 333–348.

Peterson, H. (2010). The gendered construction of technical self-confidence: Women's negotiated positions in male-dominated, technical work settings. *International Journal of Gender, Science and Technology, 2*(1): 66–88

Posey, L. (2016) Gender. *Critical Quarterly*, 58(3): 94-96

Statistiska Centralbyrån, SCB (2014). Trender och prognoser 2014. Available 2017-01-09 at [http://www.scb.se/Statistik/_Publikationer/UF0515_2014I35_BR_AM85BR1401.pdf]

Statistiska Centralbyrån, SCB (2015). Inom vården finns Sveriges vanligaste yrken. [online]. Available at: http://www.scb.se/hitta-statistik/sverige-i-siffror/utbildning-jobb-och-pengar/sveriges-vanligaste-yrken/ [Accessed 2 Mar. 2017].

Statistiska Centralbyrån (2016). På tal om kvinnor och män 2016. [online]. Available at: http://scb.se/sv_hitta-statistik/Statistik-efter-amne/Levnadsforhallanden/Jamstalldhet/Jamstalldhetsstatistk/12259/Behallare-for-Press/40481 [Accessed 1 Jun.2017]

SOU 2016:89, *För digitalisering i tiden*, Stockholm

SOU 2015:50, *Hela lönen, hela tiden Utmaningar för ett jämställt arbetsliv,* Stockholm

Vetenskapsrådet (2002). Forskningsetiska principer inom humanistisk-samhällsvetenskaplig forskning. Stockholm: Vetenskapsrådet.

von Essen, F (2012). Rapport; IT- och telekomföretagens kompetensbrist. Available 2015-11-09 at [https://www.itotelekomforetagen.se/fakta-och-debatt/rapporter_1/rapportkompetensrapport]

von Essen, F. (2015). Rapport IT och telekomföretagen; Akut och strukturell kompetensbrist i IT- och telekomsektorn. Available 2017-01-19 at [https://www.itotelekomforetagen.se/MediaBinaryLoader.axd?MediaArchive_FileID=3a739857-c4a7-466e-8add-34ce28b91b02&FileName=Kompetensbrist_i_IT_sektorn_A.pdf]

Appendix 1; Letter of initial contact

Hi,

I am contacting you concerning a research study, which focuses on women's perception of working within the IT-business. The purpose of the study is to increase the level of understanding, in order to support and speedy up the process of attracting more women into working in IT.

I would like to interview you, as a woman in IT, for about 45-60 minutes. The interview can be conducted through a meeting, where I come to see you, or via Skype or by phone. I guarantee full anonymity throughout the study and we are following the guidelines set up by Vetenskapsrådet (the Science Council). The study will constitute an important contribution to further research on the subject, and your participation is highly appreciated.

My name is Catrin Wiberg and I will be conducting the study, as a student at the International Master's Program of Strategic Human Resource Management at the University of Gothenburg. Please contact me if you would like to be a part of the study, or if you have any questions. You can reach me on e-mail; [redacted]

You are also welcome to contact Associate Professor Gabriella Elgenius, [redacted] or +46 [redacted] for further questions.

Thank you and best regards,

Catrin Wiberg

Appendix 2, Interview guide English

Date: **Name** **Background info:**

Age	
Ethnicity	
Civil status	
No of children	
Years working in IT	

Presentation of the study;

Purpose: The focus of the study is to investigate in what it is like to be a woman in a male dominated sector, by specifically looking at the IT-sector.

Length: On an average 60 minutes, but depends on how much we talk

Confidentiality and anonymity is guaranteed during the entire study. All recordings and notes are for my use and I will anonymise you as I transcribe the interview. Any employer have no insight or access to any research material or are informed of who's participating.

Is it ok to record the interview? All recordings and notes taken during the interview are for my own use and to aid me in the analysing process. No interviews will be published in their whole, although quotations will be used to describe the findings of the study.

Do you have any questions before I start?

Introductory questions

Opening-up/Ground mapping

Role:

1. How would you describe you position today? Title? For how long have you been working within IT? In this company?
2. How did you get here? To this position?
3. So, what is your previous experience?
4. What is your educational background?
5. How come you chose this career path?
6. How do you like you working in this role?
7. How would you describe your most important tasks?
8. How would you describe your most important competences/skills?
9. What is your career goal?

Company:

10. How is it to be working in this company?
11. How would you describe the distribution of people in your company, age, gender, ethnicity, other groups?
12. How does the organization work with equality?
13. Do you think they are trying to encourage women here? In what ways?
14. Do you think there is an equal basis to work here (ages, groups, gender etc.)?
15. Are you aware if you have any equal treatments policies? What do they say? Have you seen them? Read them? How do you feel about these?
16. Do you know if you have any activities directed at diversity issues? What are they? What do you think of them?
17. How do you talk about equality in the organization? Amongst leaders? Colleagues?

Personal impact:

18. What is it like for you, being a woman in a male dominated branch, such as the IT-sector? How does it affect you?
19. How was it to start working as a women in the IT-sector? Any challenges? Opportunities? Changes over time? Now? Why? Why not?
20. Do you think being a woman, is influencing your possibilities and opportunities? In what ways?
21. Have you ever felt like you were being treated differently, due to your gender, compared to males?
22. Do you think women and men perform differently? Do they bring different things? How? What?

23. So, why do you think there are so few women working with IT?

24. So, since you are a woman in a male dominated sector, how do you see diversity?

25. Being a woman, in what ways would you say it affects you?

Organizational impact

26. How would you describe the distribution of task in your company, how is it handled? Division of roles. Division of tasks. Promotion, division of labour. Does women and men have the same opportunities?

27. How would you describe your social work environment?

28. Do you have any company activities, such as after work? What do you do? Do you feel included?

29. How do you perceive your colleagues' attitudes towards diversity?

30. How would you describe the language used at your workplace?

31. What would you advice a woman entering the IT-sector? Why?

Role models and networks

32. Are you a member of any professional networks outside of your job? How would you describe it? Good/bad? Why?

33. Would you say that anyone has influenced you in your career goals? Female or male?

34. Do you have any role models? Who? Why?

Home/Family/Friends,

35. What is your civil status? Do you have children? Girls and boys? How old are they?

36. How would describe your work- family life balance?

37. How is your employer supporting you in this?

38. How do you talk about housework in your family, how do you structure it?

39. How did having children influence your career?

40. How did you divide your parental leave? Why?

41. How do you divide VAB (taking care of sick children)?

42. How do you talk to your kids about gender equality?

43. What advice would you give your kids about gender and gender equality?

Intersectionality:

44. Where do you come from? (Ethnicity)

45. How did you come to Sweden? Why? When?

46. Do you think your ethnicity is affecting your opportunities on the labour market? How?

Conclusion / summary

47. Is there anything else you wish to tell me, that I have not already asked you about?

48. Are you satisfied with your answers?

49. Would it be okay if I contact you again with an eventual supplementary question?